



# **Water Conditions Summary**

**Operations Control, Engineering & Vegetation  
Management Department**

**Operations & Maintenance Resource Area**

Governing Board Presentation

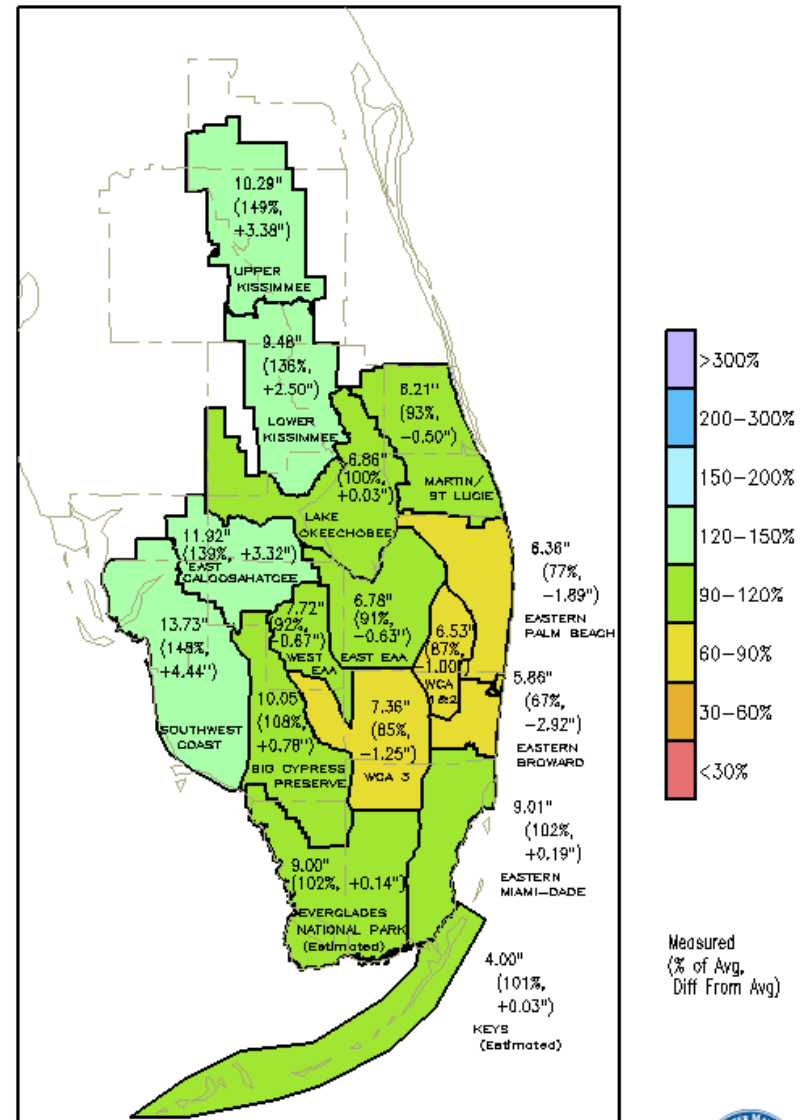
July 9, 2003

# Meteorological Conditions

# Meteorological Conditions

- District-wide rainfall in June was slightly above average
- June Rainfall : District-wide rainfall was 113% of average
  - Normal Rainfall: 7.95 inches
  - Actual Rainfall: 8.96 inches
  - Est. Pan Evaporation: 5.6 inches
- July Rainfall : District-wide rainfall to-date is below average

- Most areas of the District received average to above average rainfall in June
- Above average rainfall occurred in the Kissimmee & Caloosahatchee basins



DISTRICT-WIDE: 8.93" (112%, +0.98")

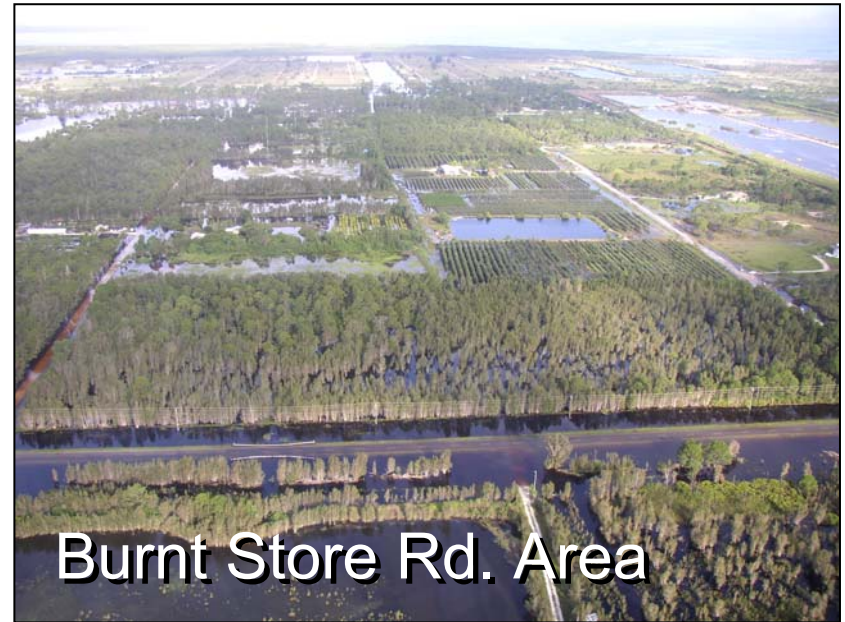
GRADS: COLA/ICES

Governing Board Presentation - June 9, 2003



# June \_ Flood Event

- \_ Inches of rainfall in a \_ hour period along the Lower West Coast region
- Wide-spread shallow flooding was reported in Charlotte, Hendry & Lee Counties
  - “Sheet Flow” runoff extended for several days after the rainfall event



# 2003 Hurricane Season Status



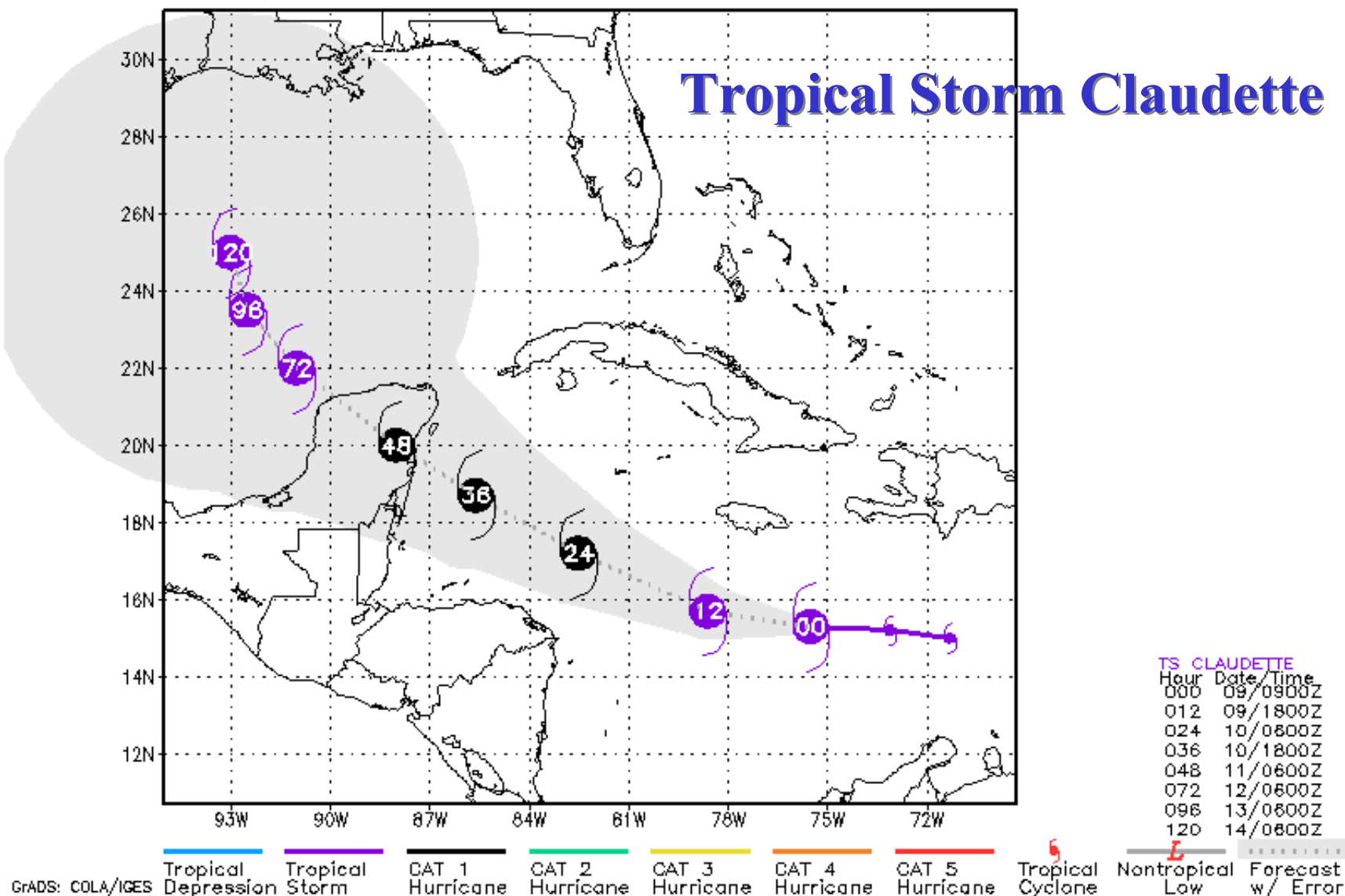
Category	Predicted	Average	Actual
Named Storms	14	10	3
Hurricanes	8	6	0
Strong Hurricanes	3	2	0



# National Hurricane Center Forecast Track And Storm Motion During Previous 72 Hours

Plot Generated: Wed - Jul 09, 2003 - 0900 UTC (-4 for EDT)






## Tropical Storm Claudette











Governing Board Presentation - June 9, 2003

# General Hydrologic Conditions

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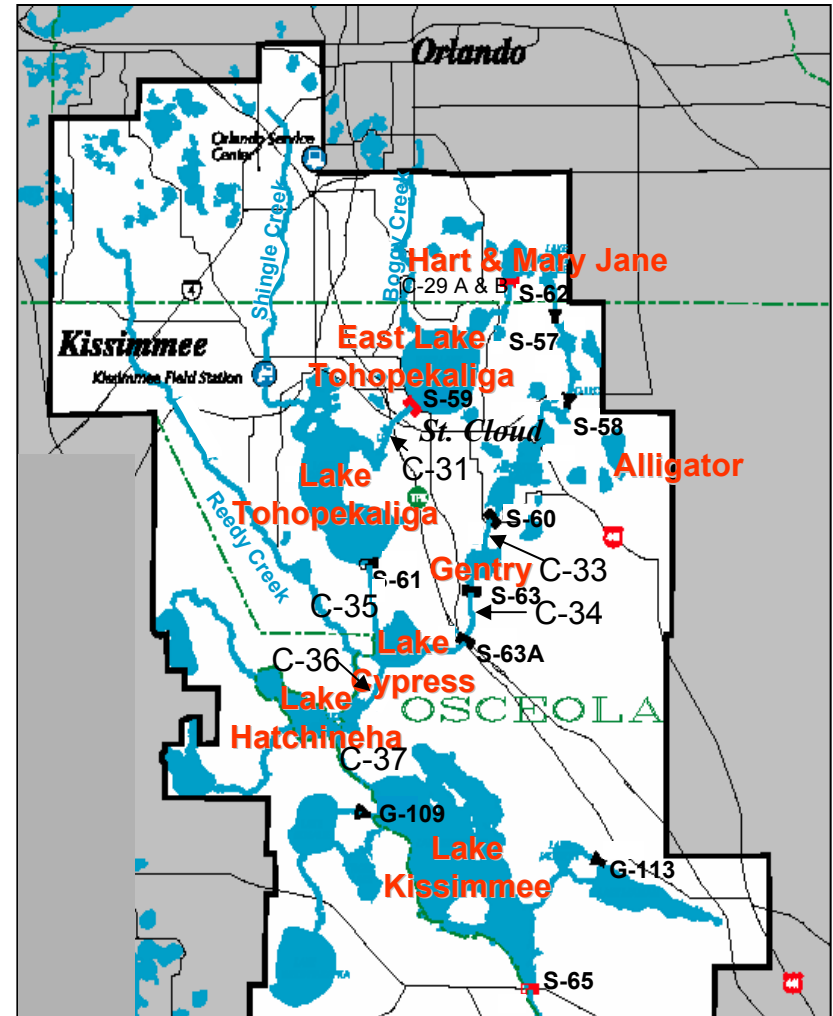
-  **Upper Chain** – Normal seasonal levels
-  **Kissimmee River** - Normal seasonal cond.
-  **Lake Okeechobee** - Above desirable stage
-  **Lake Okeechobee Agriculture**
-  **Estuaries** – Low salinity

# General Hydrologic Conditions

-  **Water Conservation Area 1** - Above Sched.
-  **Water Conservation Area 2** - Above Sched.
-  **Water Conservation Area 3** - Above Sched.
-  **ENP** - Normal seasonal conditions
-  **Fl. Bay** - Normal seasonal conditions
-  **Upper East Coast** – Normal canal levels
-  **Lower East Coast** - Norm. seasonal grndwtr.
-  **Lower West Coast** - Norm. seasonal grndwtr.

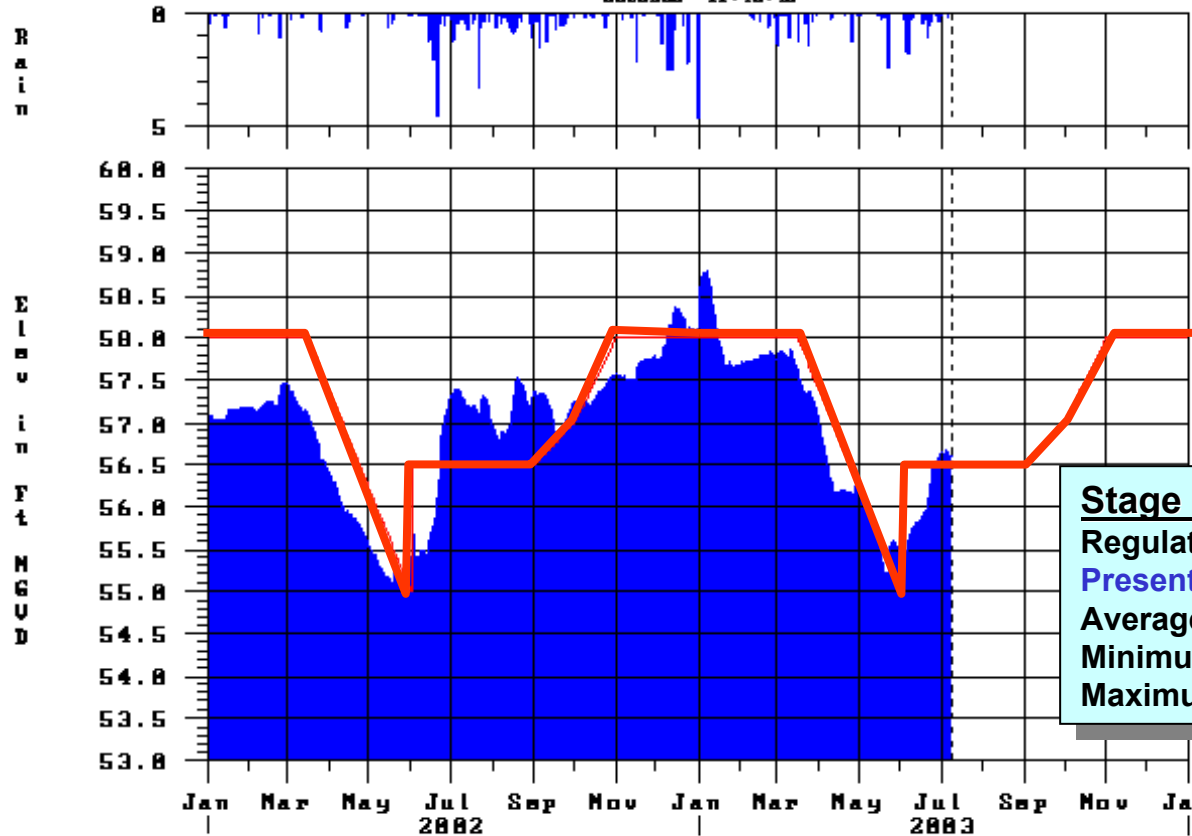
# Hydrologic Conditions Upper Kissimmee Basins

- Structures at most lakes are making regulatory releases
  - Recent rainfall has pushed stages above regulation schedule



# Kissimmee River Basin - East Lake Tohopekaliga

08 JUL 03 11:45:43



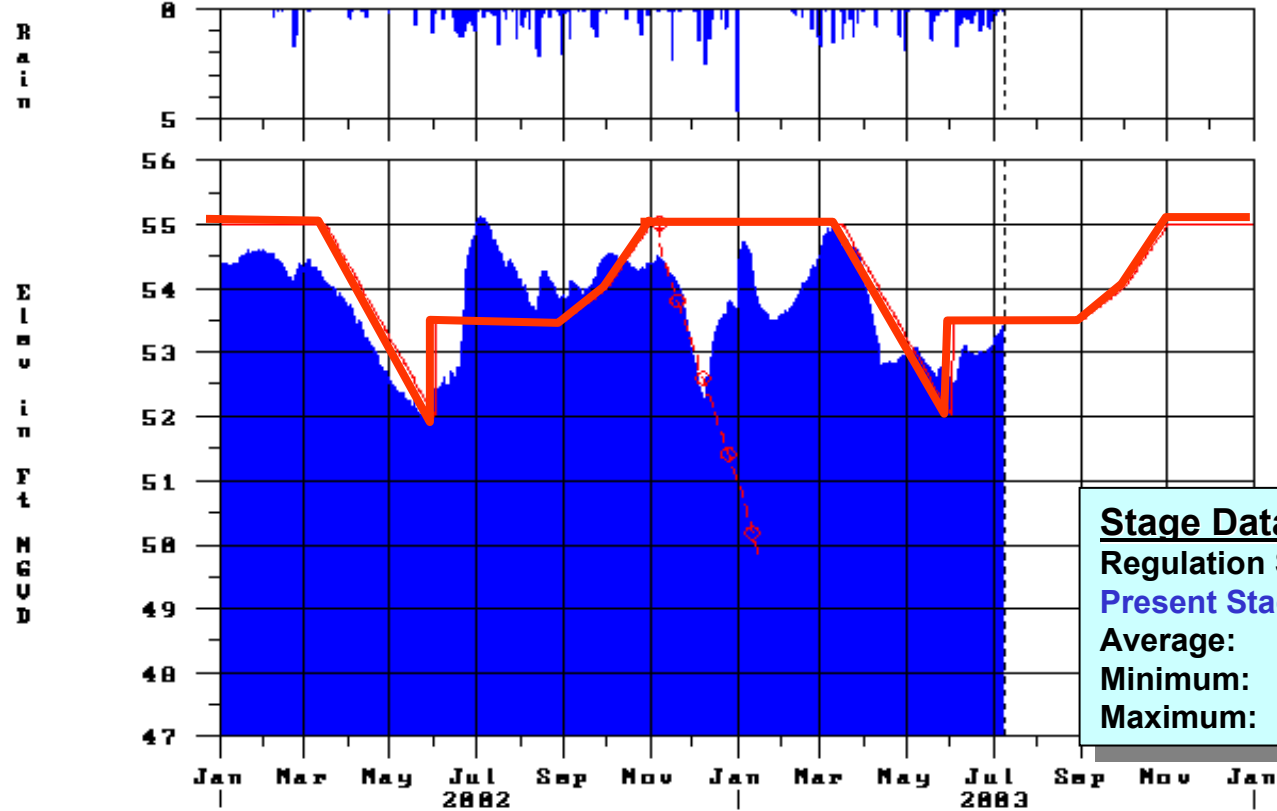
## Stage Data For This Date:

Regulation Schedule:	56.50
Present Stage:	56.59
Average:	55.29
Minimum:	52.18 (1962)
Maximum:	58.45 (1947)

— East Lake Tohopekaliga Elev      — Precip @ Kissimmee Field Station  
 - - - Alternate Regulation  
 — Zone B Regulation  
 - - - Zone B1 Regulation

# Kissimmee River Basin - Lake Tohopekaliga

00JUL03 11:45:45



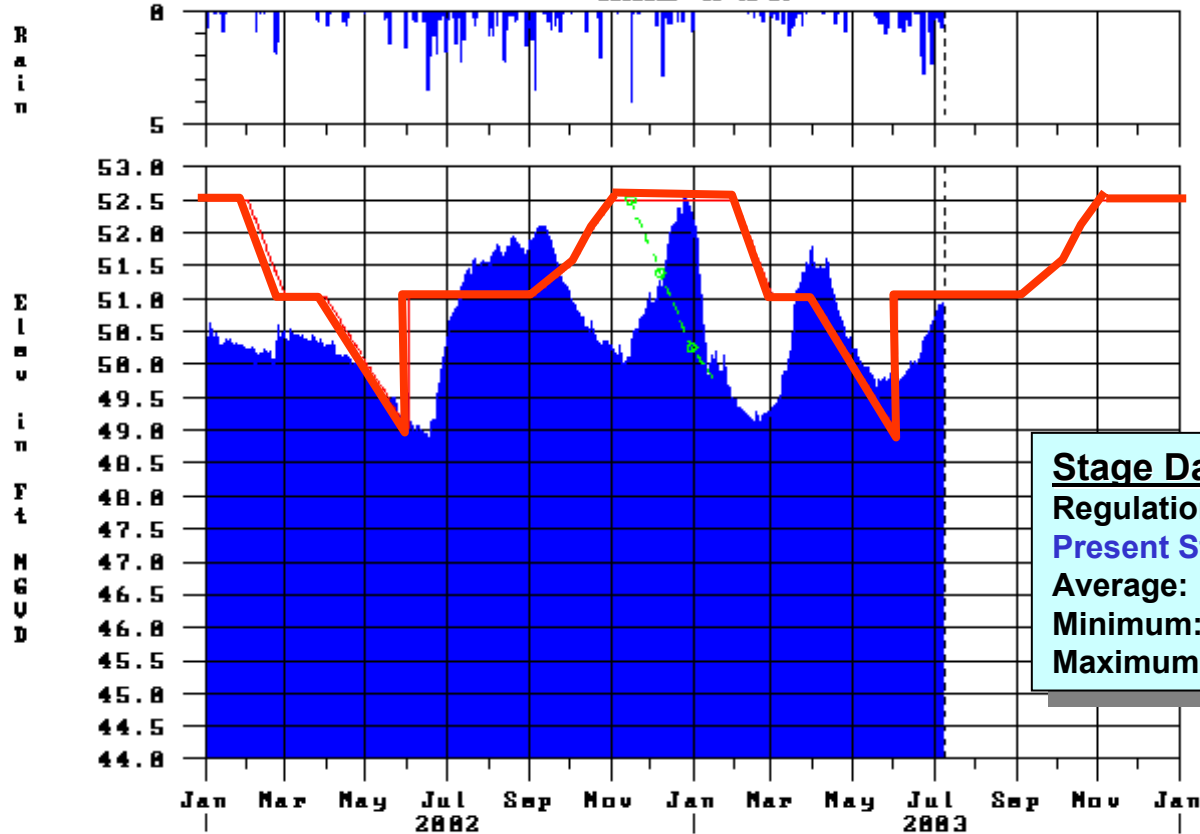
## Stage Data For This Date:

Regulation Schedule:	53.50
Present Stage:	53.41
Average:	52.59
Minimum:	48.709 (1971)
Maximum:	55.91 (1947)

— Lake Tohopekaliga  
 - - - Alternate Regulation  
 — Zone B Regulation  
 - - - ⊕ - - - Zone B1 Regulation  
 - - - Δ - - - Zone B2 Regulation  
 — Precip @ S-61

# Kissimmee River Basin - Lake Kissimmee

08 JUL 03 11:45:54



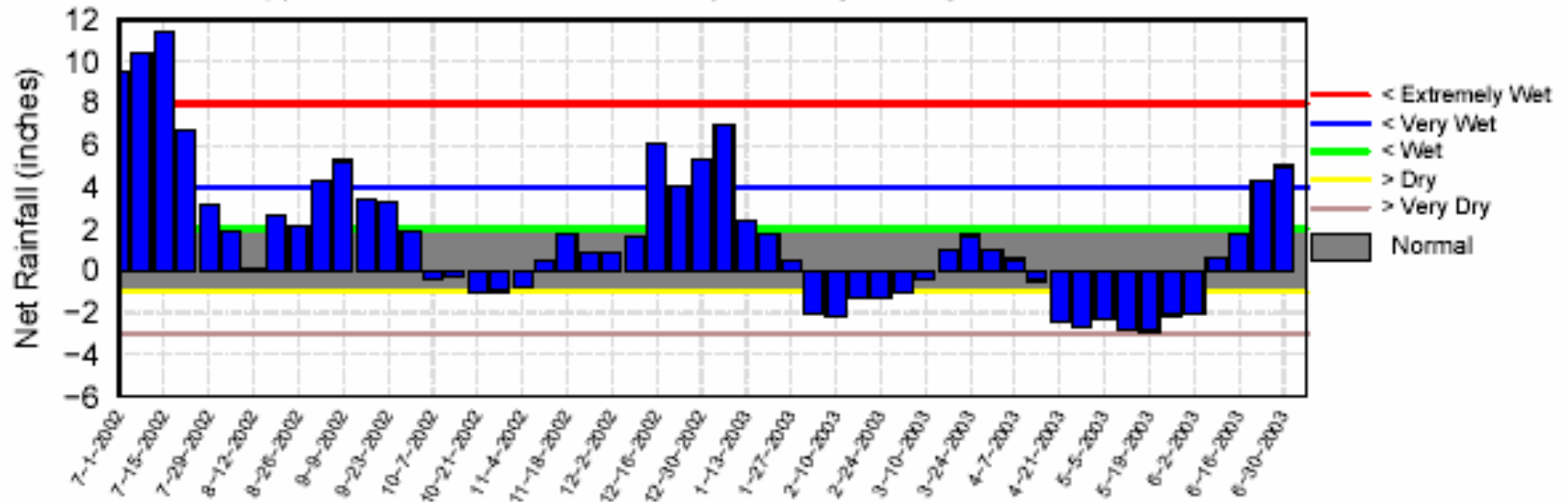
## Stage Data For This Date:

Regulation Schedule:	51.00
<b>Present Stage:</b>	<b>50.93</b>
Average:	49.64
Minimum:	44.94 (1962)
Maximum:	55.40 (1930)

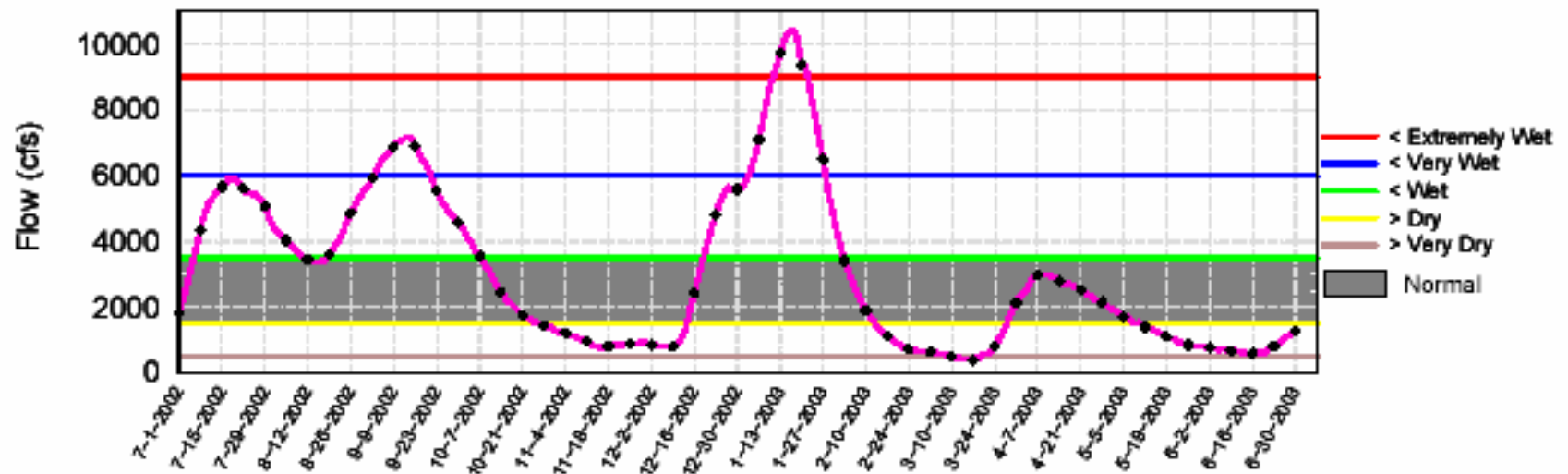
— Lake Kissimmee Elev  
 — Zone B Regulation  
 - - - - - Zone B1 Regulation  
 - - - - - Zone B2 Regulation

# Tributary Basin Condition Indicators as of June 30, 2003

## Upper & Lower Kissimmee 30-day Running Average of Net Rainfall



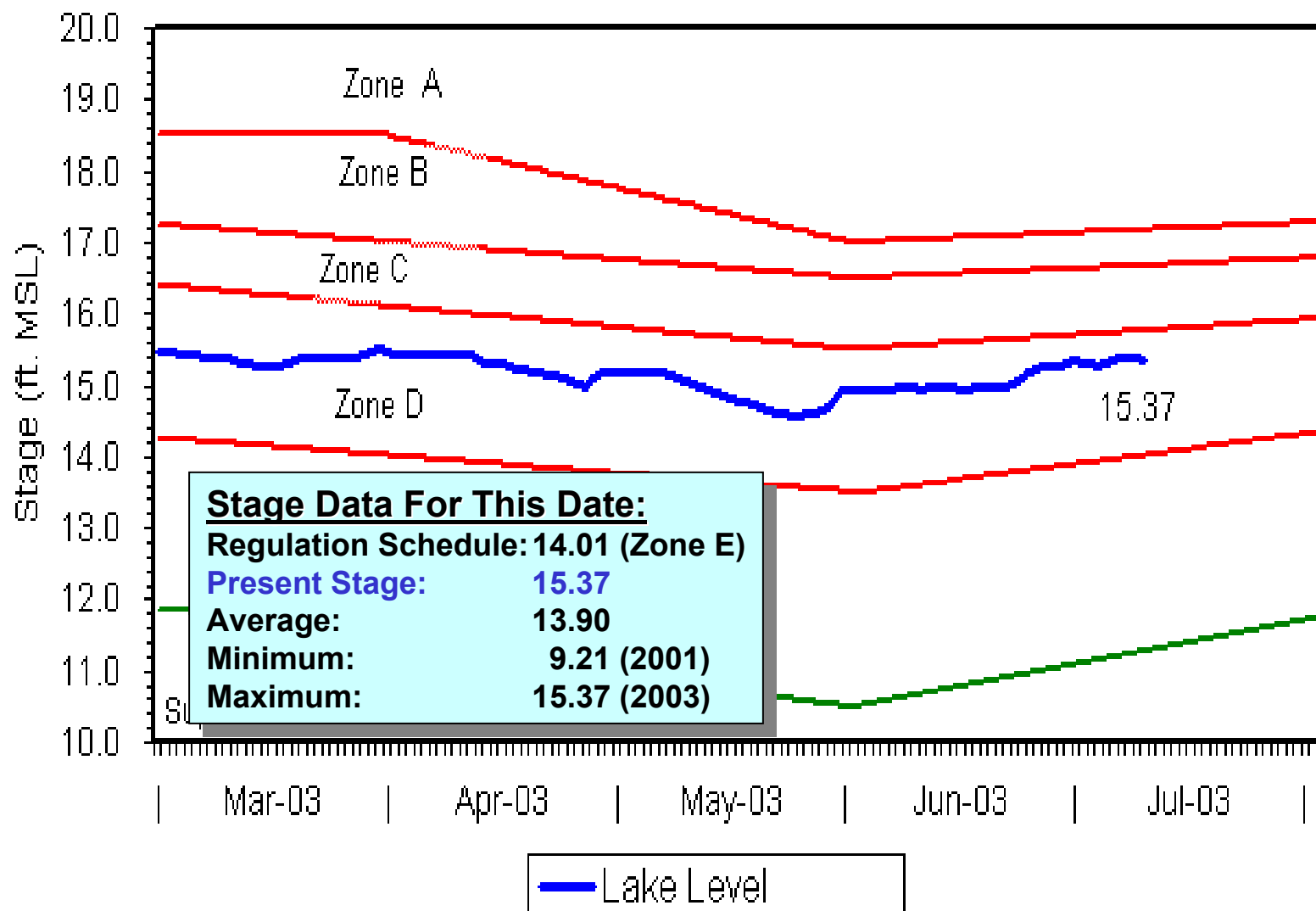
## S-65E 14-day Running Average of Flow

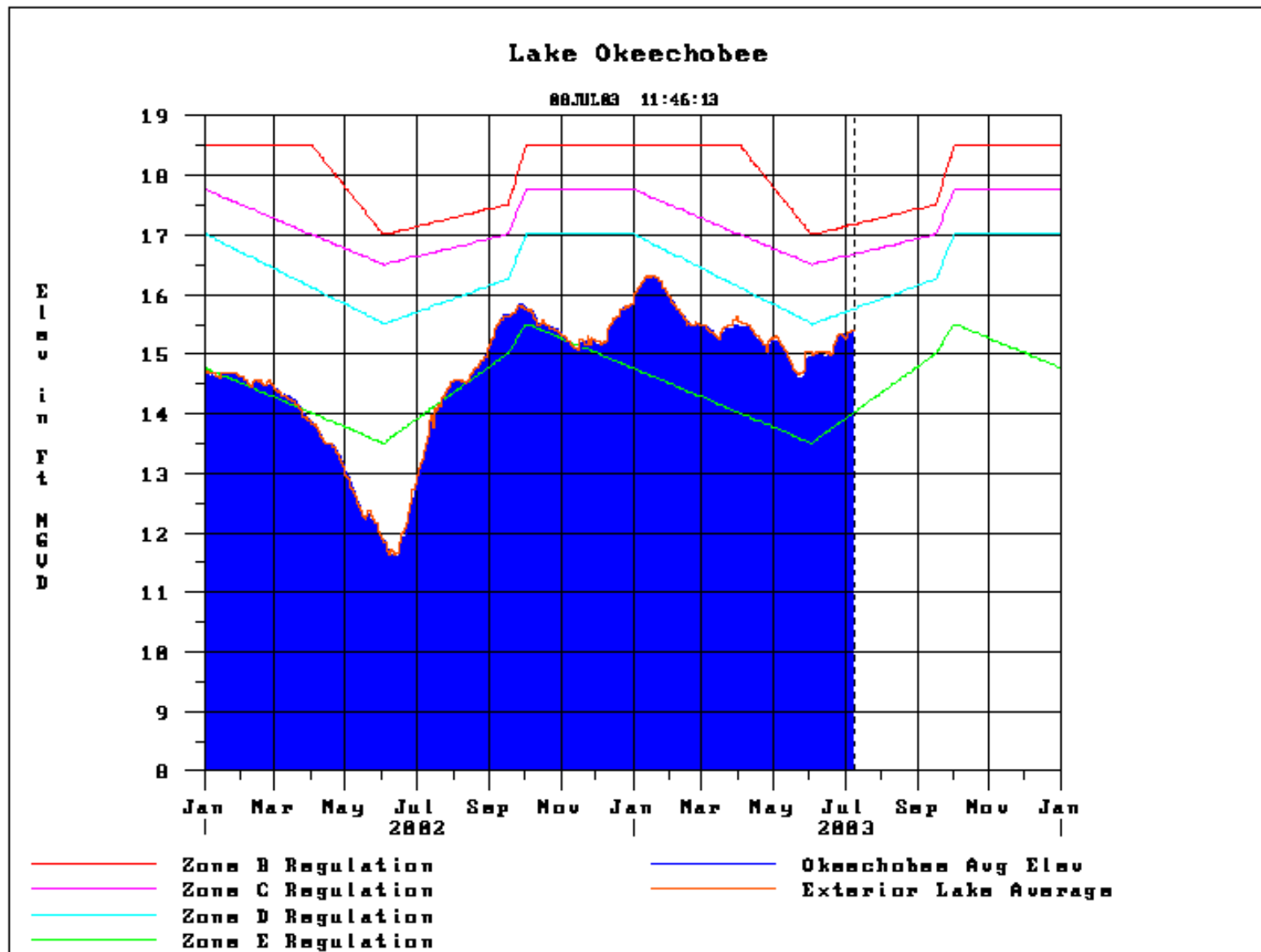


# Hydrologic Conditions Lake Okeechobee

- Lake Okeechobee stages increased because of continued above average rainfall around the lake
  - Kissimmee River inflows have remained low
  - Largest inflows are from Indian Prairie basins
- No agricultural irrigation demands
  - Ag areas have been under flood control operations since mid-May
- USACE recently completed a Level III Pulse
  - Currently making Level II Pulse Release

# Lake Okeechobee





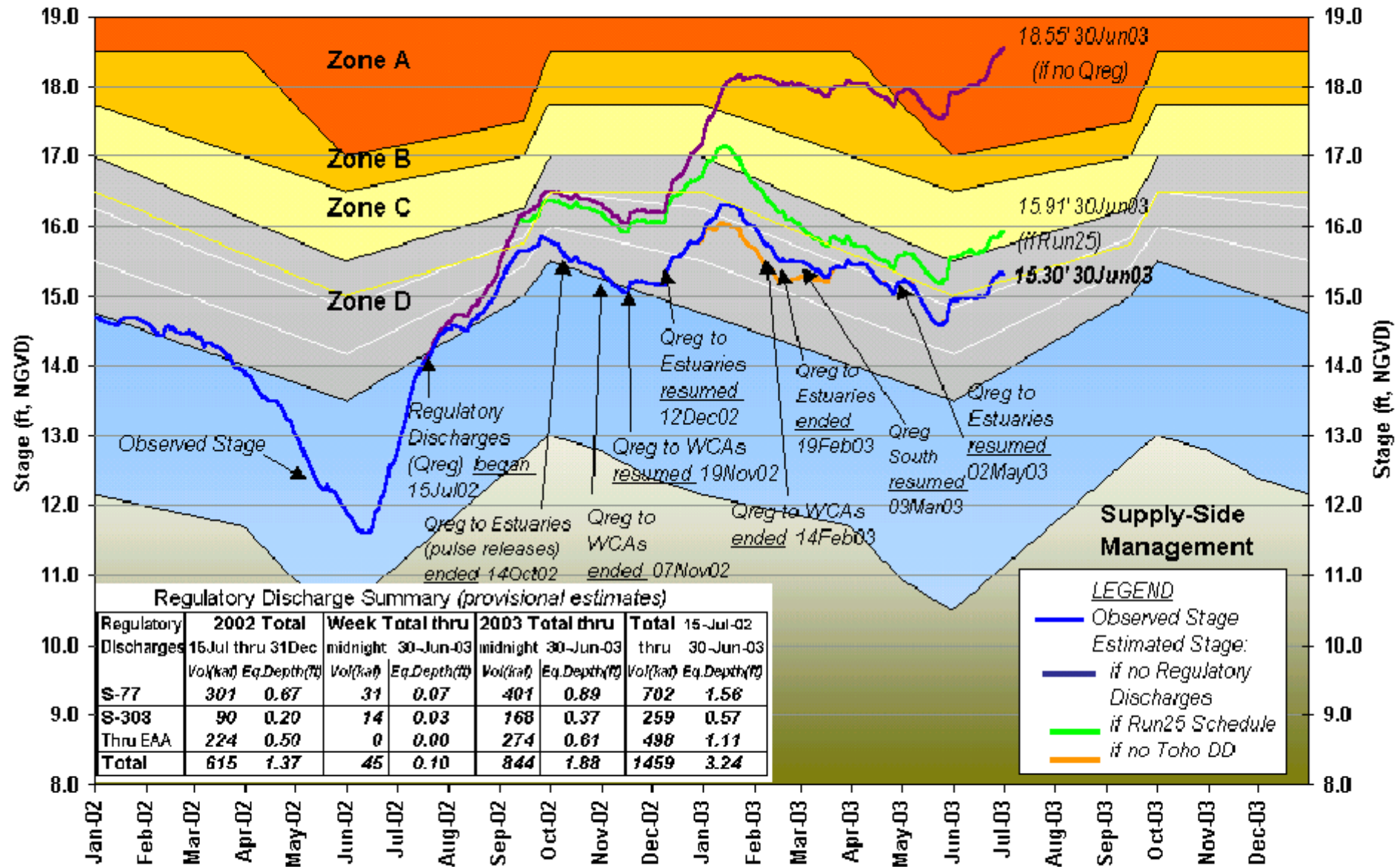
# Lake Okeechobee

## Current Operations

- **Regulation Schedule**
  - **Stage in Zone D**
  - *Dry* inflow conditions
  - *Very Wet* rainfall conditions
  - *Wet* seasonal forecast
  - *Wet* multi-seasonal forecast
- **No discharge to the WCAs**
  - **WCAs above schedule**
- **Level II Pulse to estuaries**
  - Started July 7<sup>th</sup>
  - Will end on July 17<sup>th</sup>



# Lake Okeechobee Stage Comparison

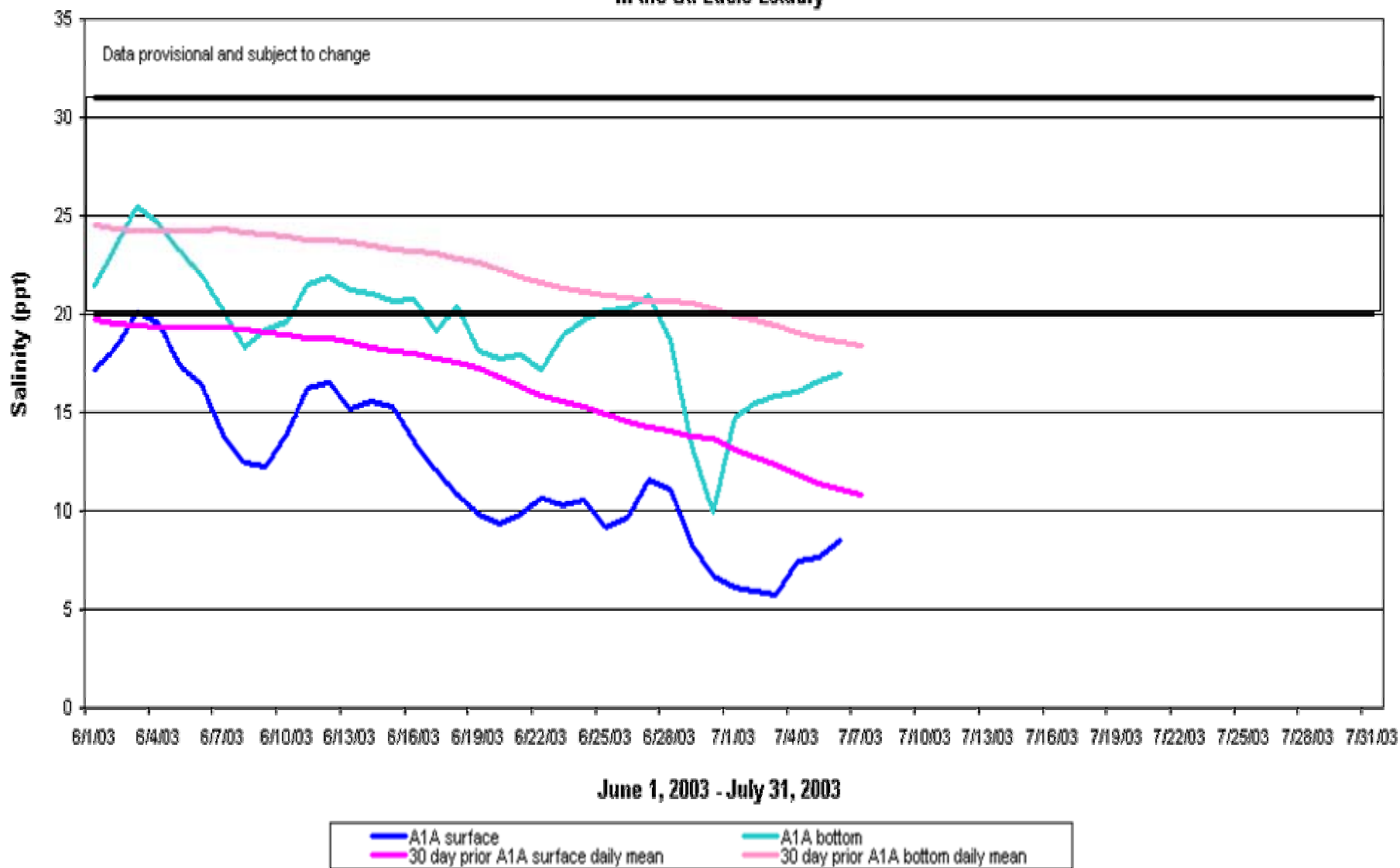


# Hydrologic Conditions

## St. Lucie Estuary

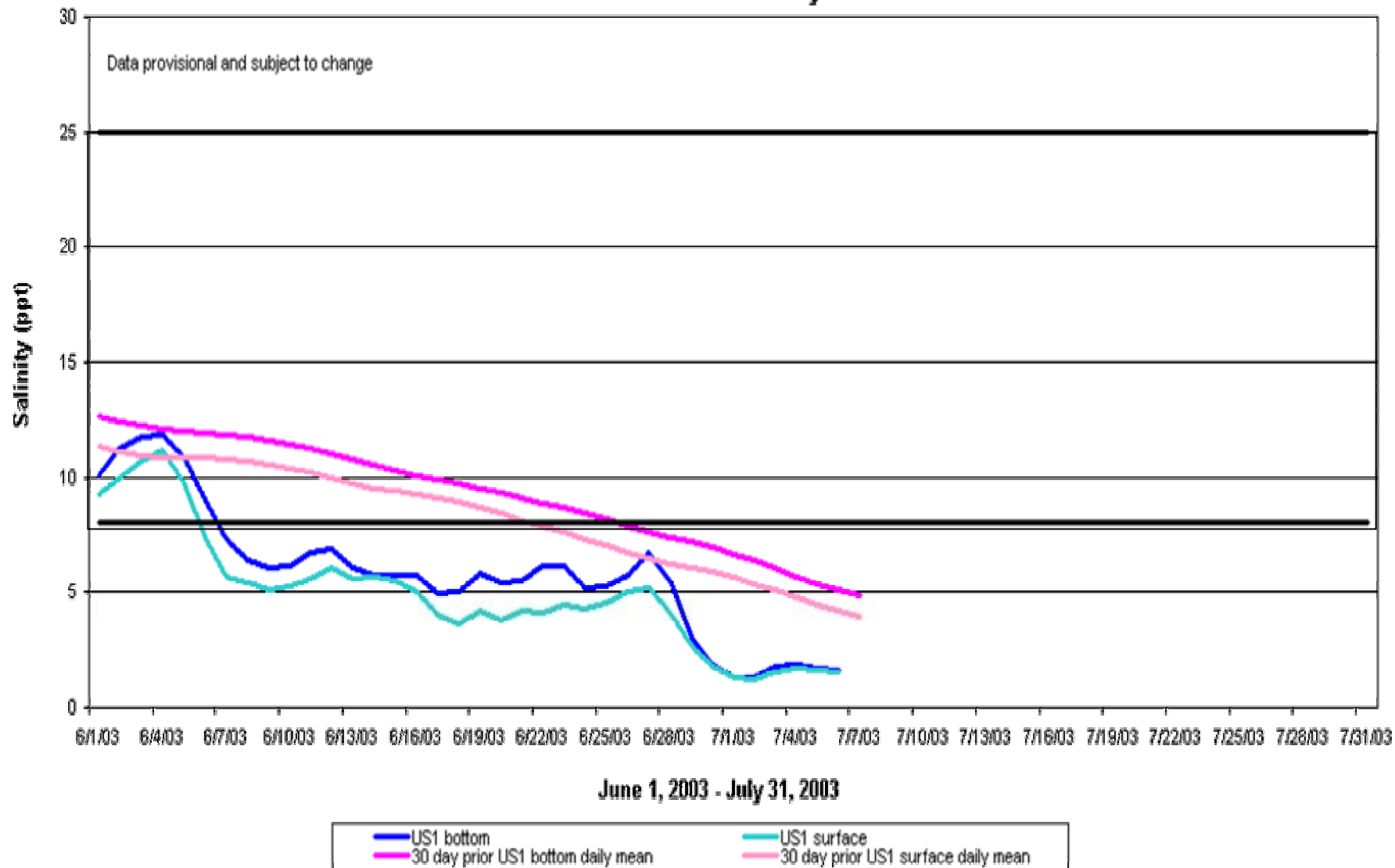
- As a result of the recent pulse releases & local rainfall, salinity measurements at both the water surface and the bottom fell below the lower end of the preferred range
- Conditions are generally similar at the both the A-1-A and U.S. # 1 sampling stations
  - U.S. #1 sampling station is exhibiting much lower bottom salinity (>5 ppt) than the A-1-A station (~17ppt)

# **Salinity Envelope and A1A Surface and Bottom Mean Daily Salinity in the St. Lucie Estuary**



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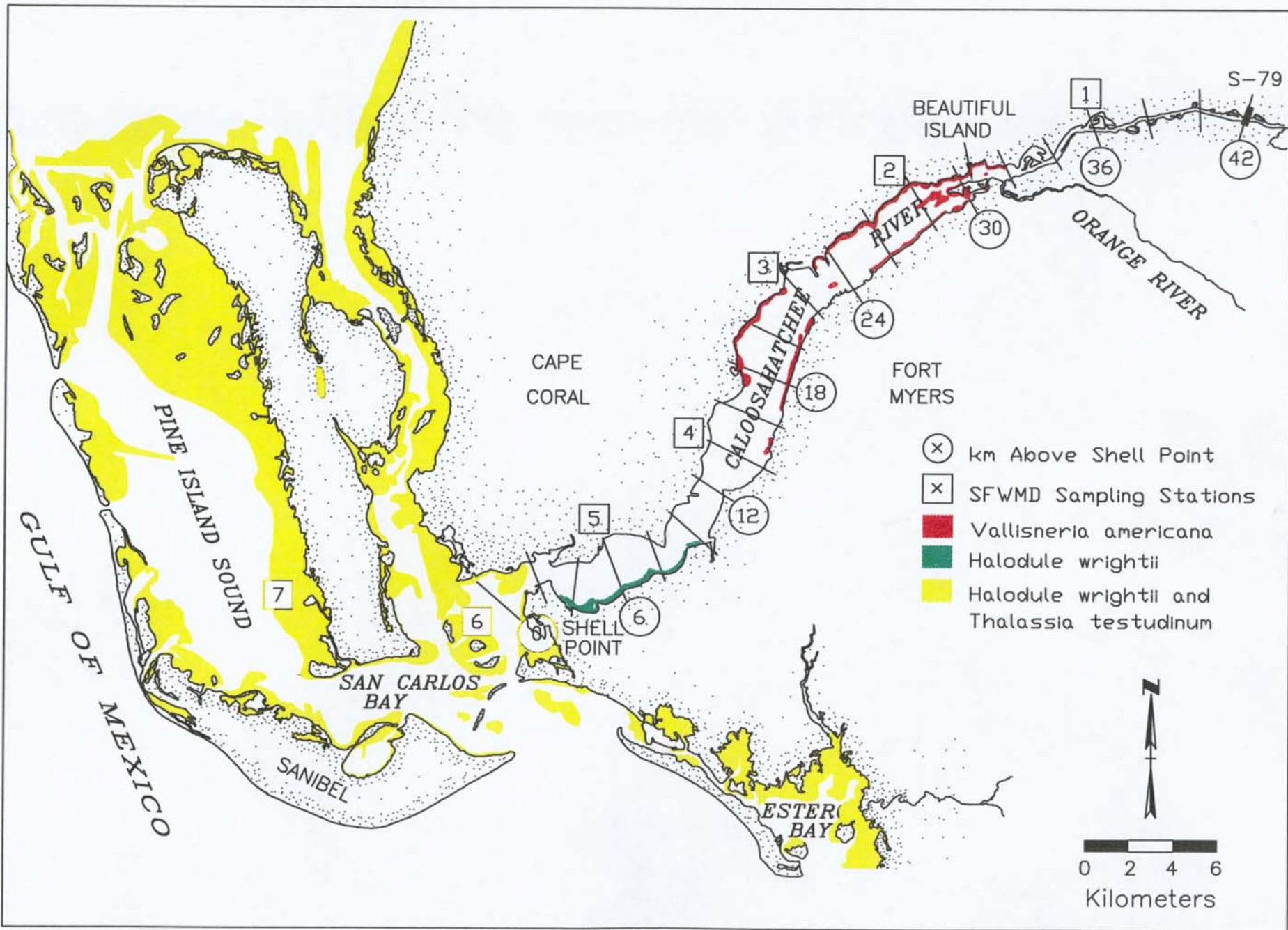
# **Salinity Envelope and US1 Surface and Bottom Mean Daily Salinity in the St. Lucie Estuary**



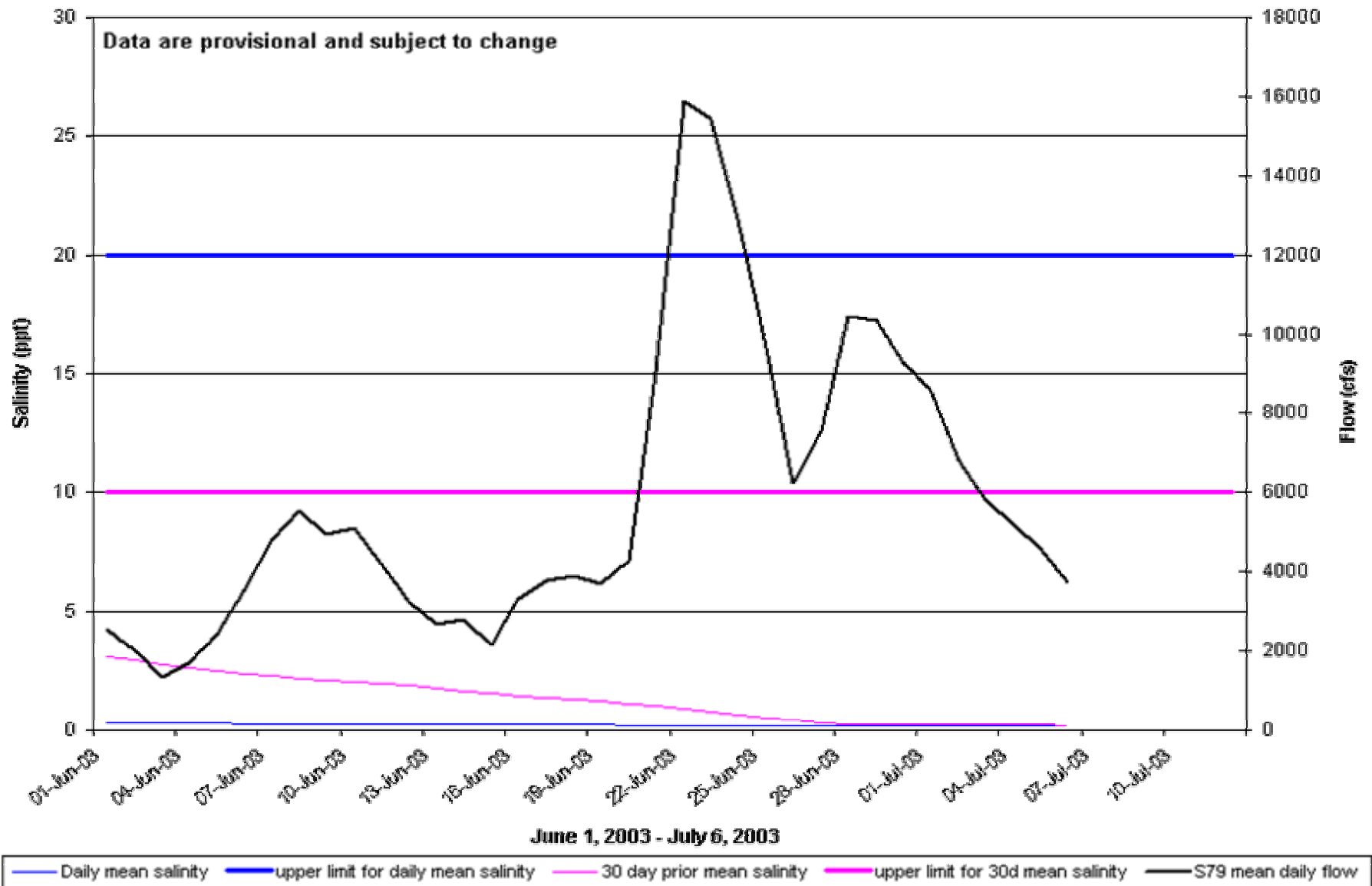
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# Hydrologic Conditions Caloosahatchee Estuary

- The 30-day average inflow at S-79 has been well above the preferred flow range (30 day average max.: 2,800 cfs)
  - Approximately 25% of the total S-79 flow is originating from Lake Okeechobee
- Recently, salinity has averaged  $< 1$  ppt at both Fort Myers and at Cape Coral– well below the preferred range
- Therefore, conditions in the lower estuary and San Carlos Bay are considered poor

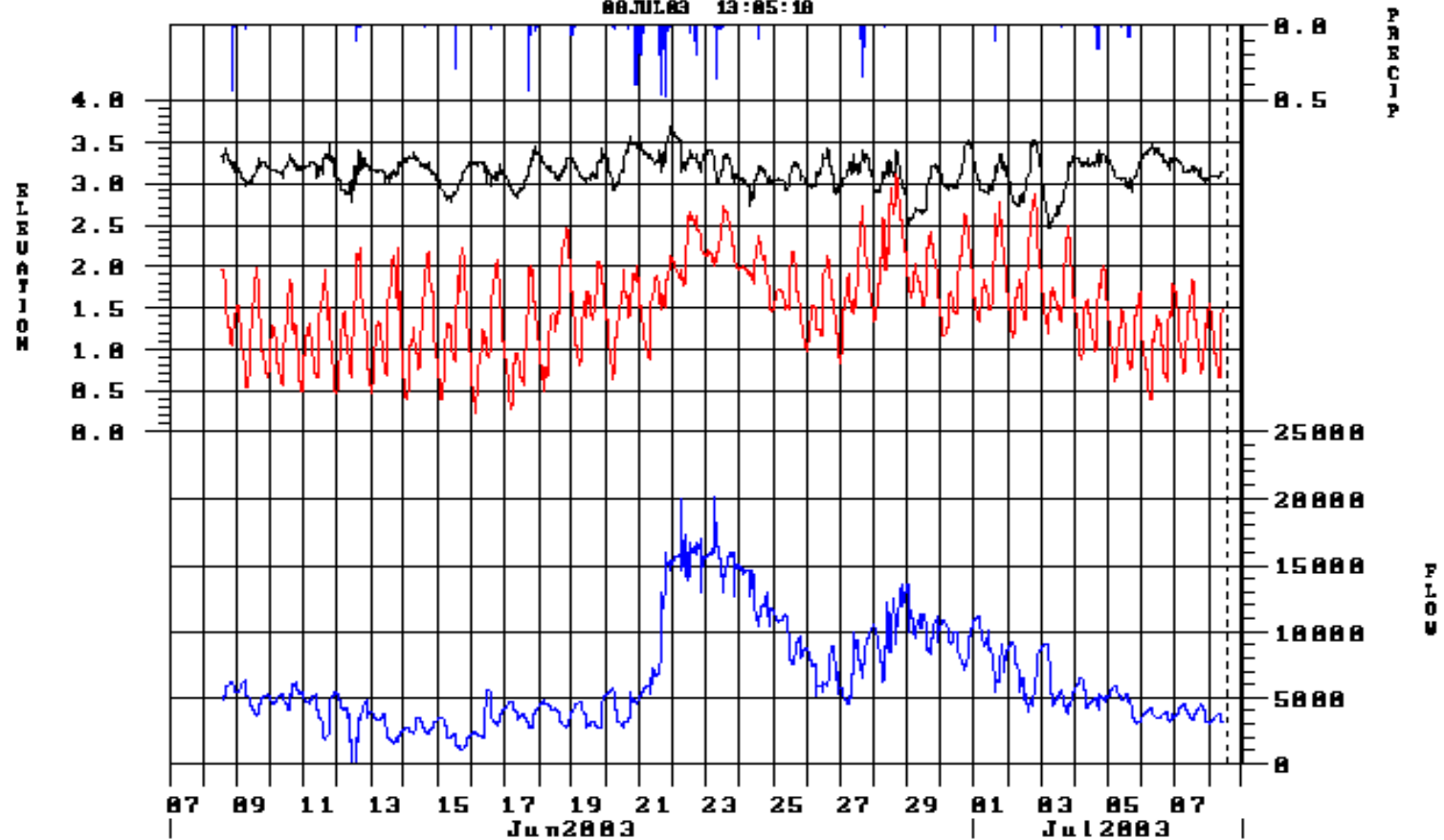


# Salinity at City of Ft. Myers Yacht Basin and Upper Limit Exceedance of Caloosahatchee MFL and Mean Daily Flow from S79



# **S79 - Headwater, Tailwater, Flow & Rainfall**

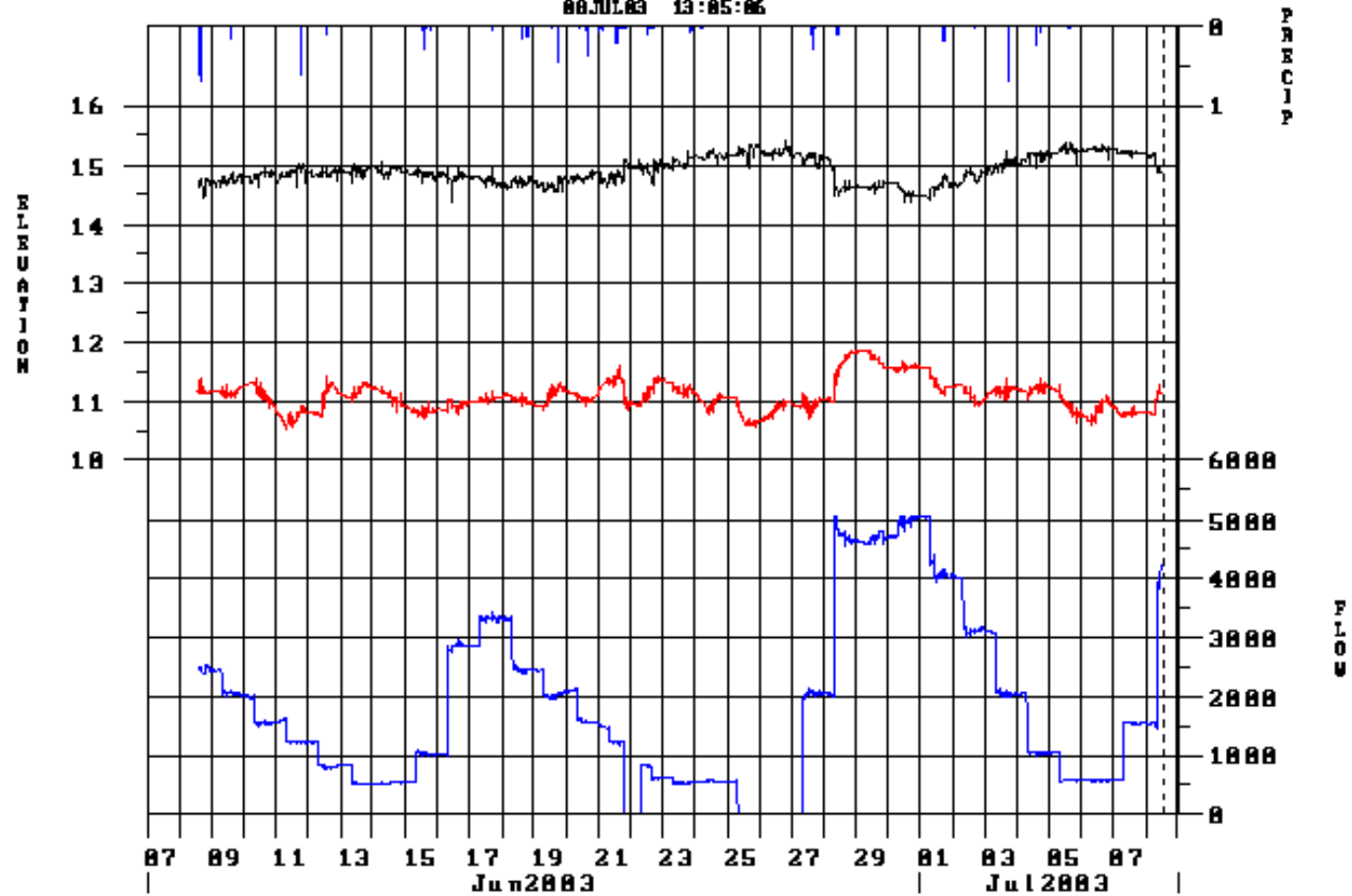
00JUL03 13:05:10



- Discharge in CFS
- Headwater Elev in Ft-MSUD
- Tailwater Elev in Ft-MSUD
- Precip in Inches

# S77 - Headwater, Tailwater, Flow & Rainfall

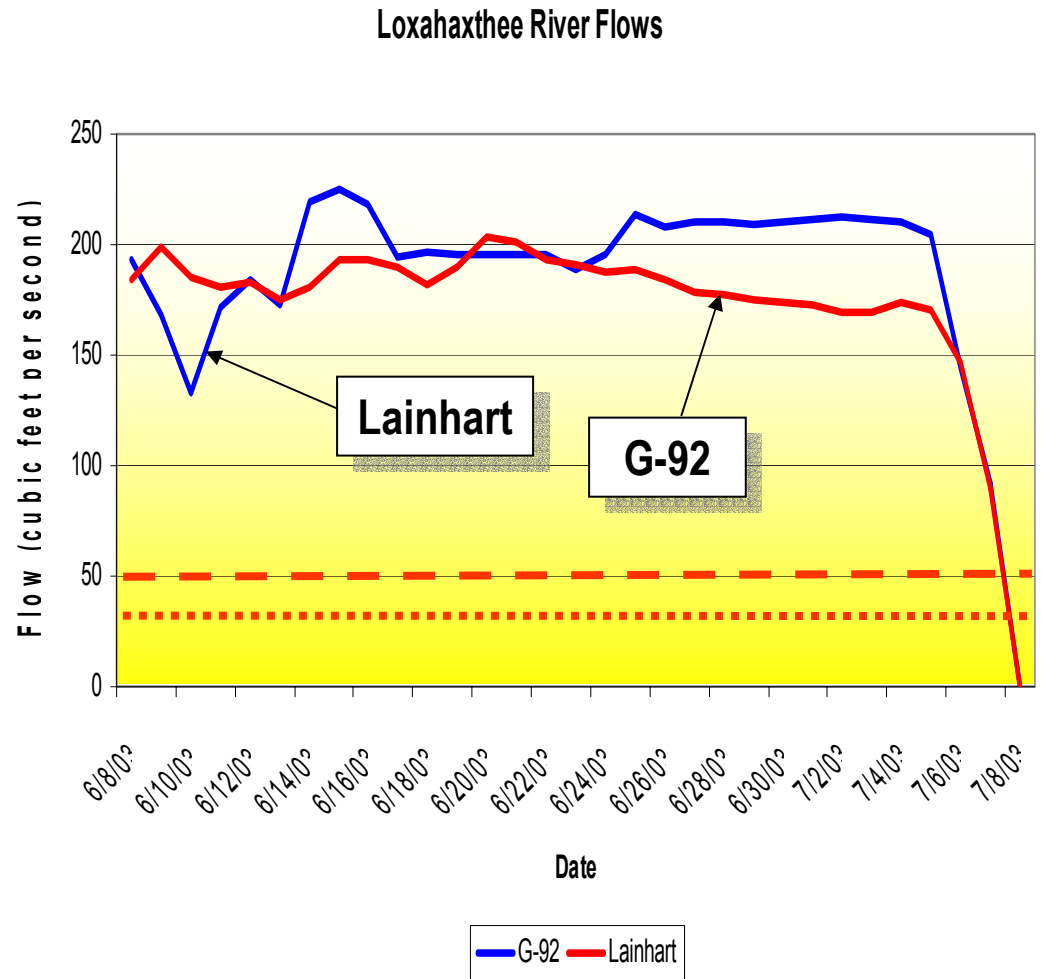
00.JUL03 13:05:06



- Discharge in CFS
- Headwater Elev in Ft-MGVD
- Tailwater Elev in Ft-MGVD
- Precip in inches

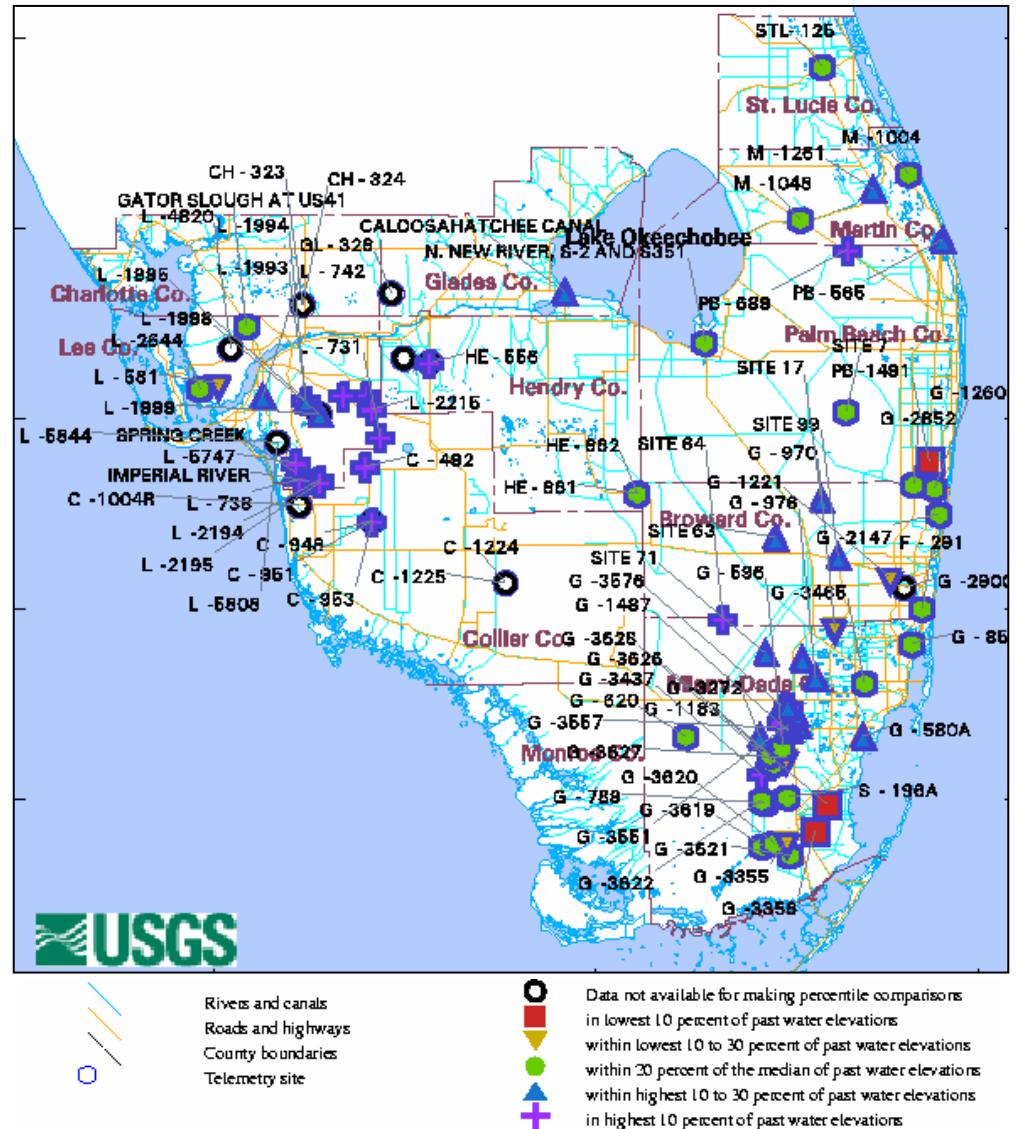
# Loxahatchee River

- Recent rainfall had maintained significant flows in the Loxahatchee River
- Flow across Lainhart Dam has recently been terminated due to major structure maintenance
- Operations staff is coordinating with Palm Beach County to utilize alternate means to bring in additional water to the River

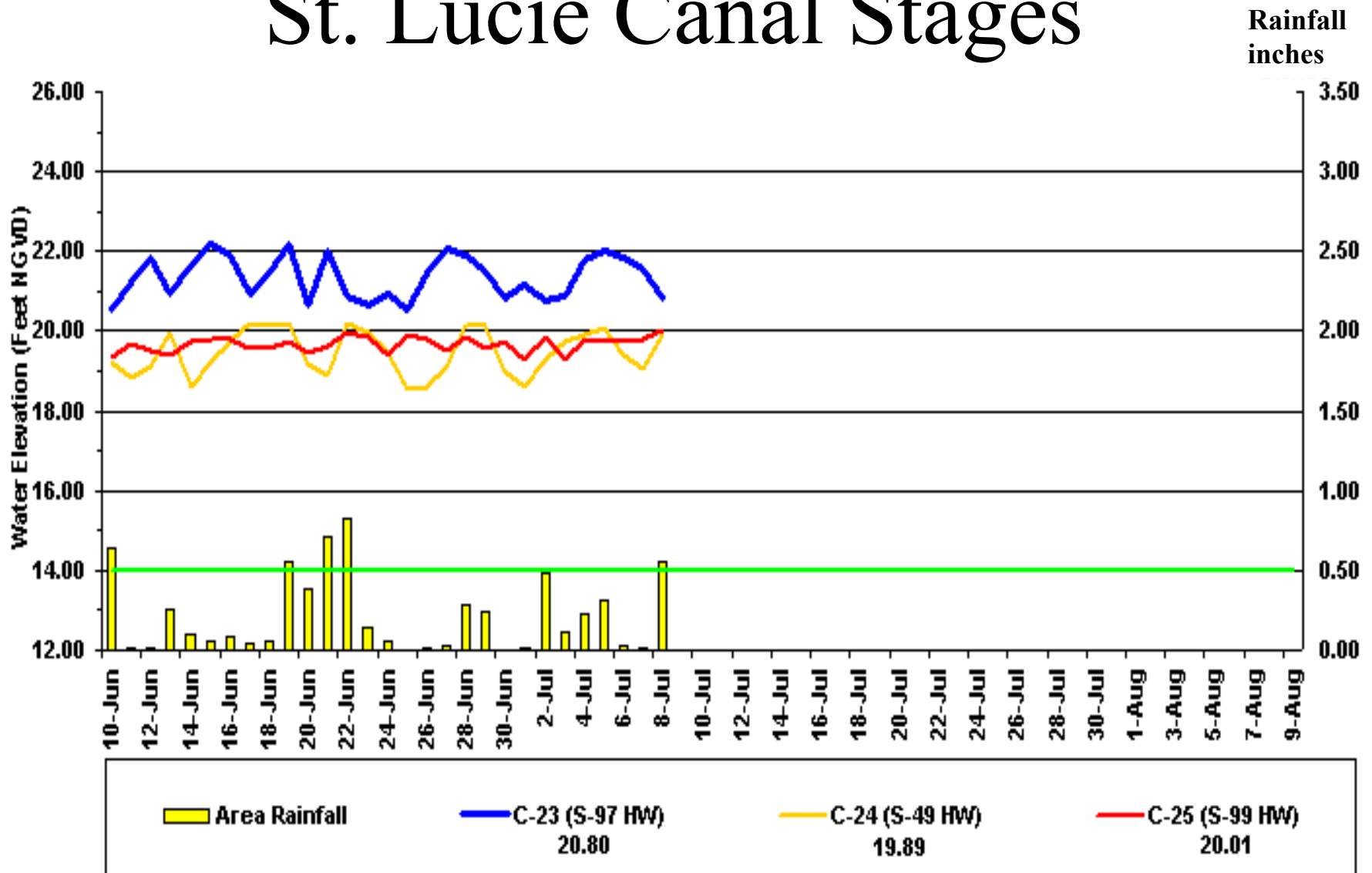


# Groundwater Conditions

- Upper East Coast
  - Normal seasonal levels
- Lower East Coast
  - Normal seasonal levels
- Lower West Coast Region:
  - Above normal seasonal levels

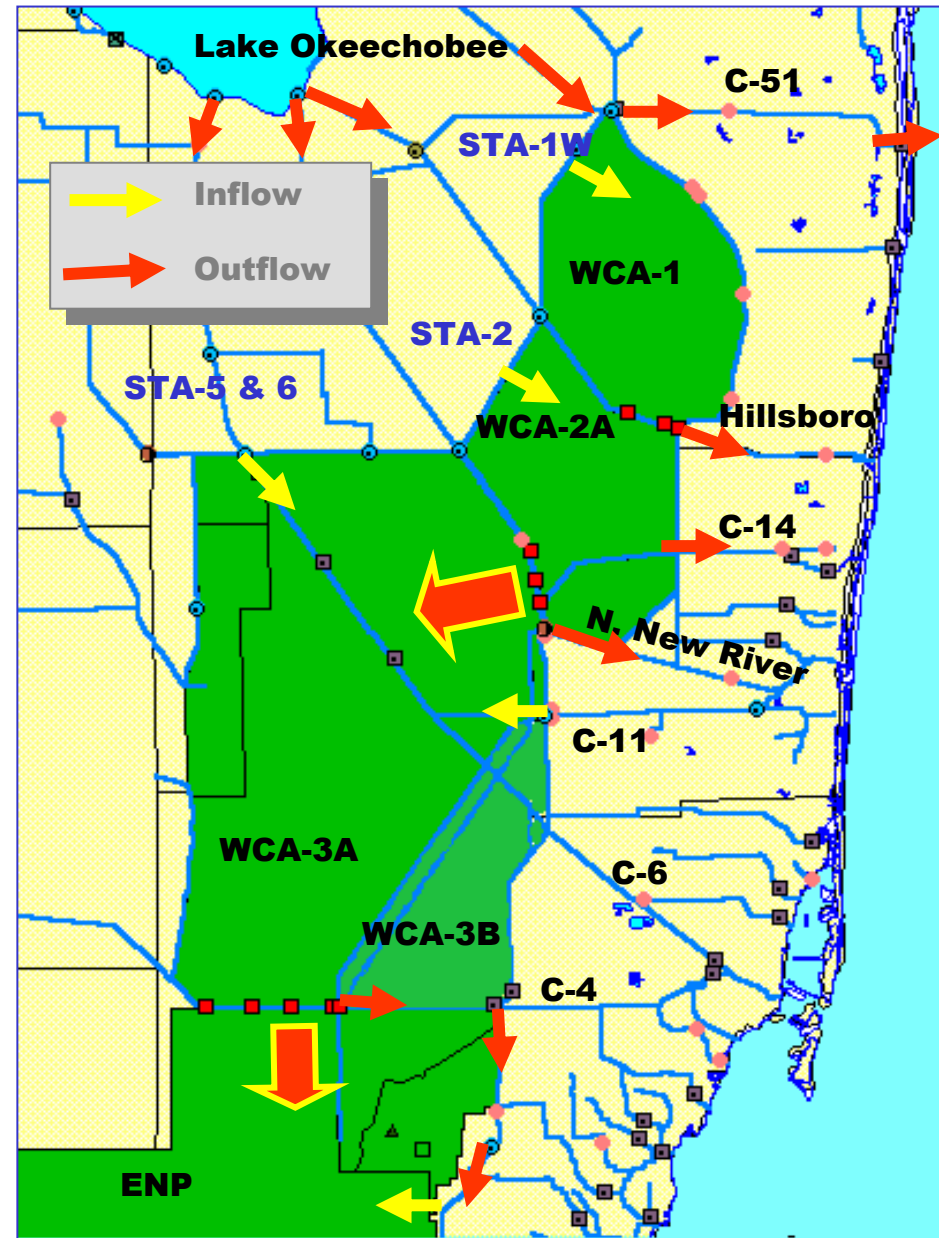


# St. Lucie Canal Stages



# Water Conservation Areas

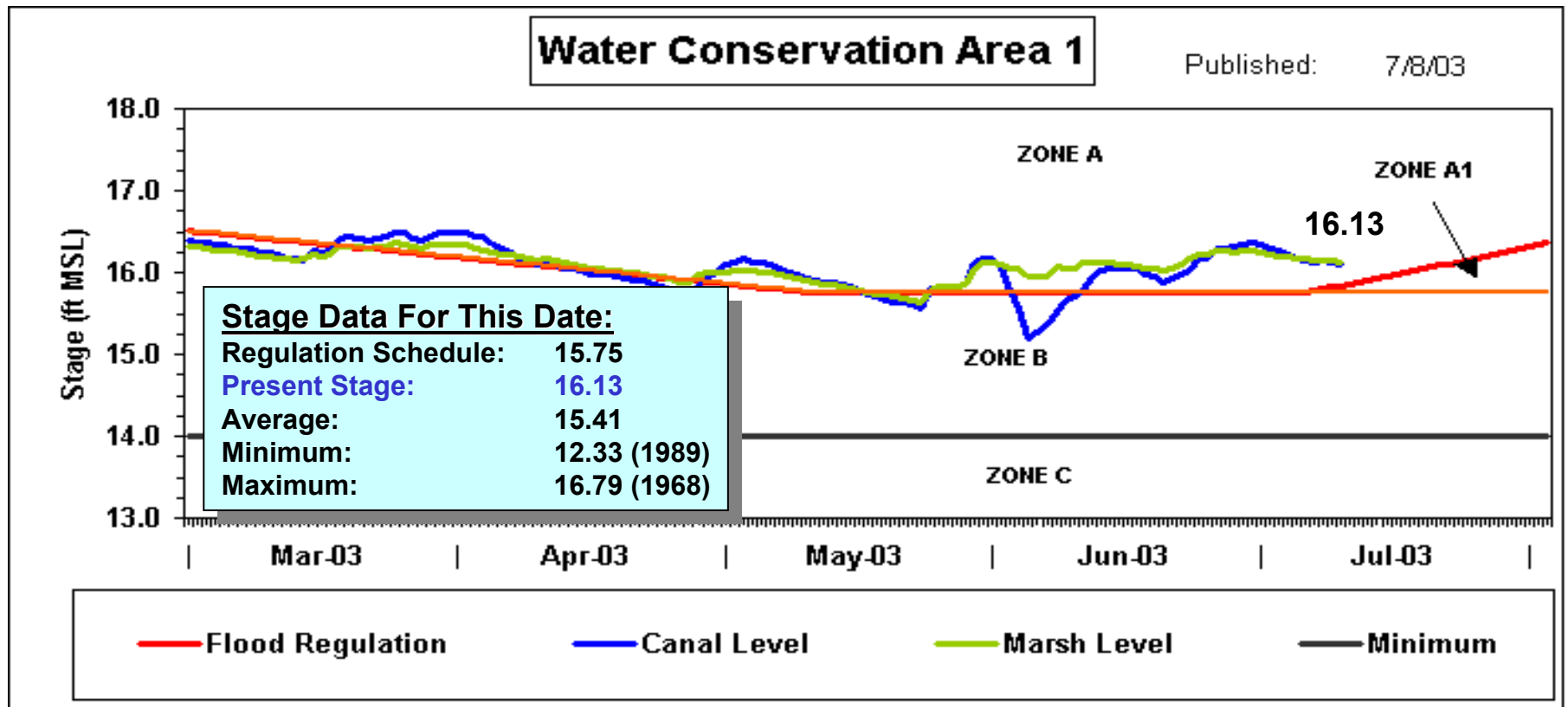
- All WCAs are above their respective regulation schedules
  - Regulatory discharges
- Maximum practicable releases to tide
  - Limited capability due to flooding concerns
- S-12C & D open
- IOP Operations



# Hydrologic Conditions

## Water Conservation Area No. 1

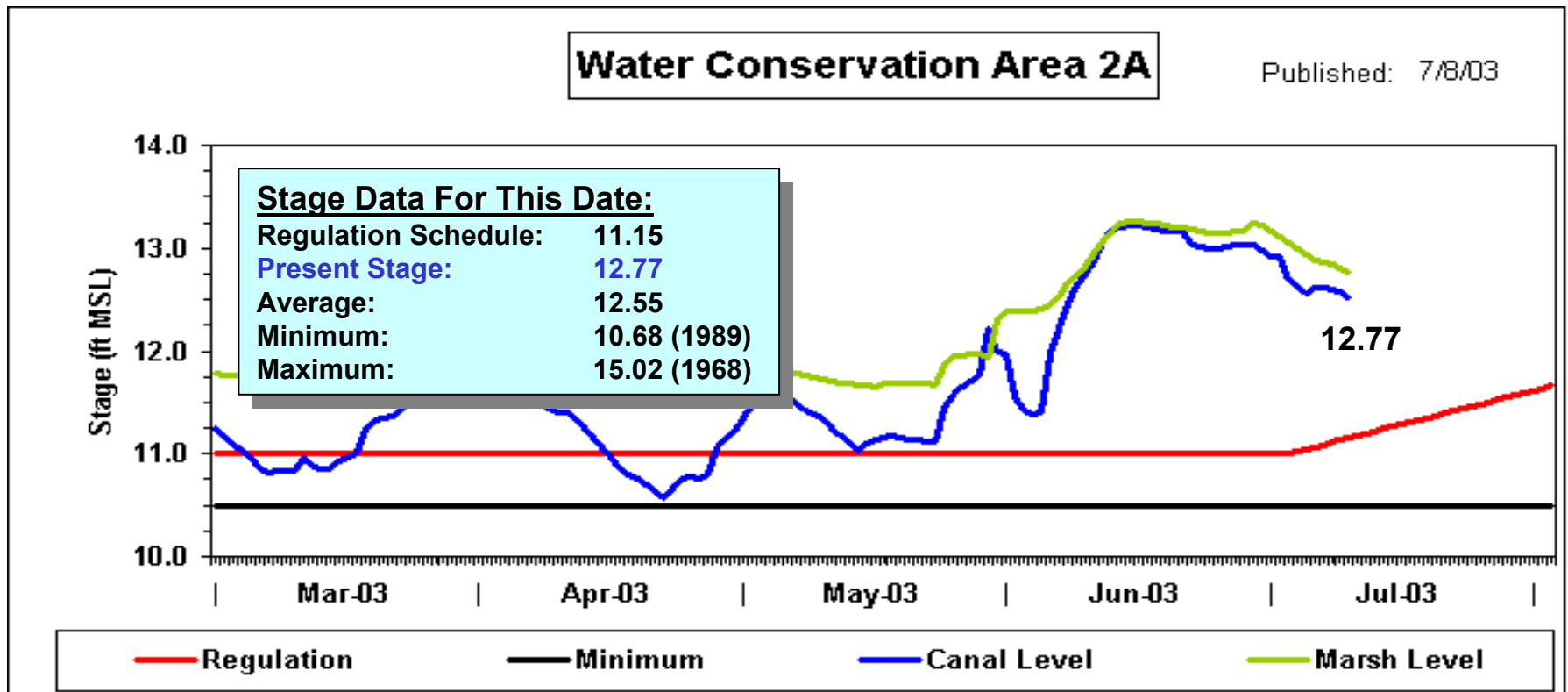
- S-10's closed due to ongoing stage recession
- Discharge to tide via Hillsboro & C-51 canals



# Hydrologic Conditions

## Water Conservation Area No. 2A

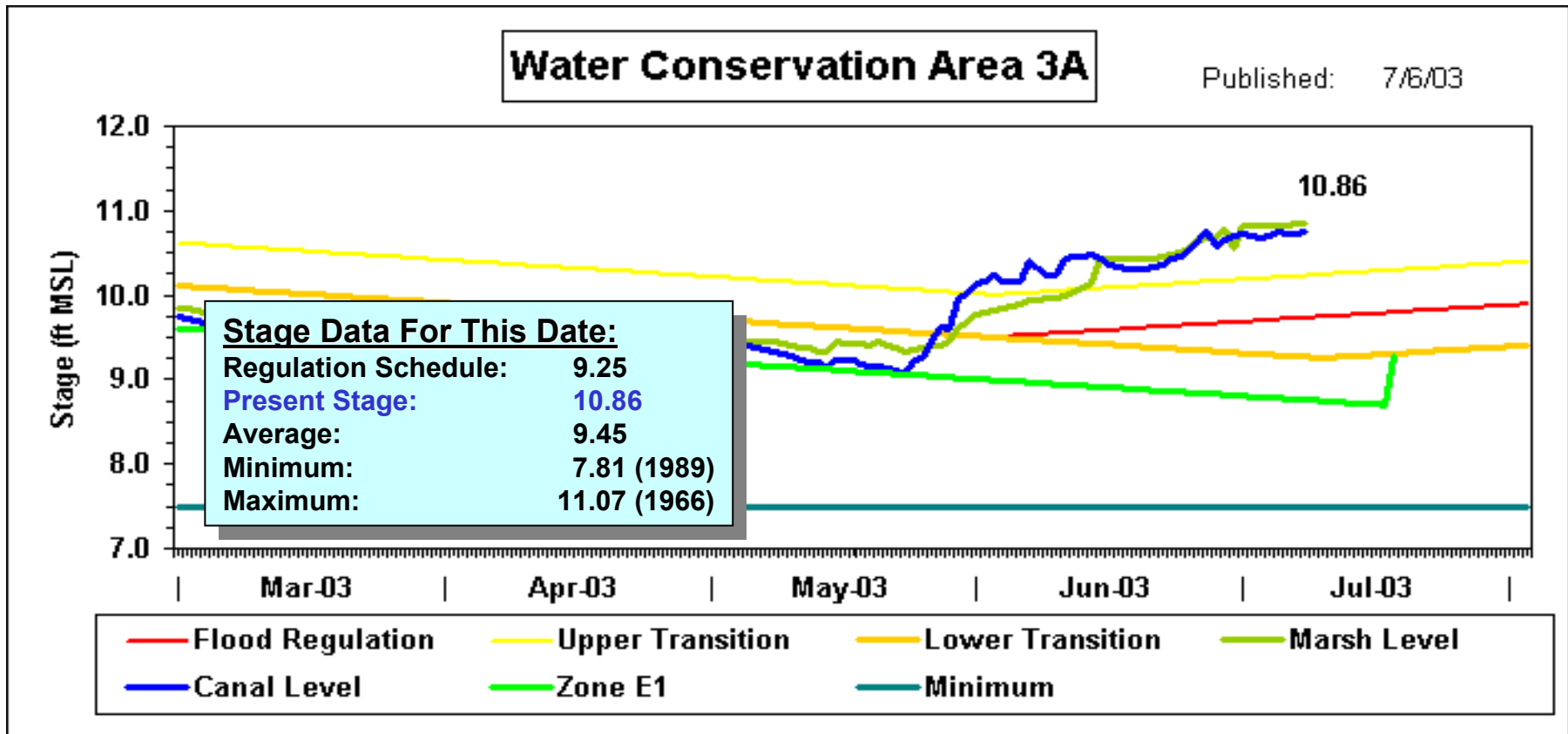
- Discharge thru S-11s, C-14 & North New River canals



# Hydrologic Conditions

## Water Conservation Areas

- Discharge thru S-12C & D and S-333 to SDCS



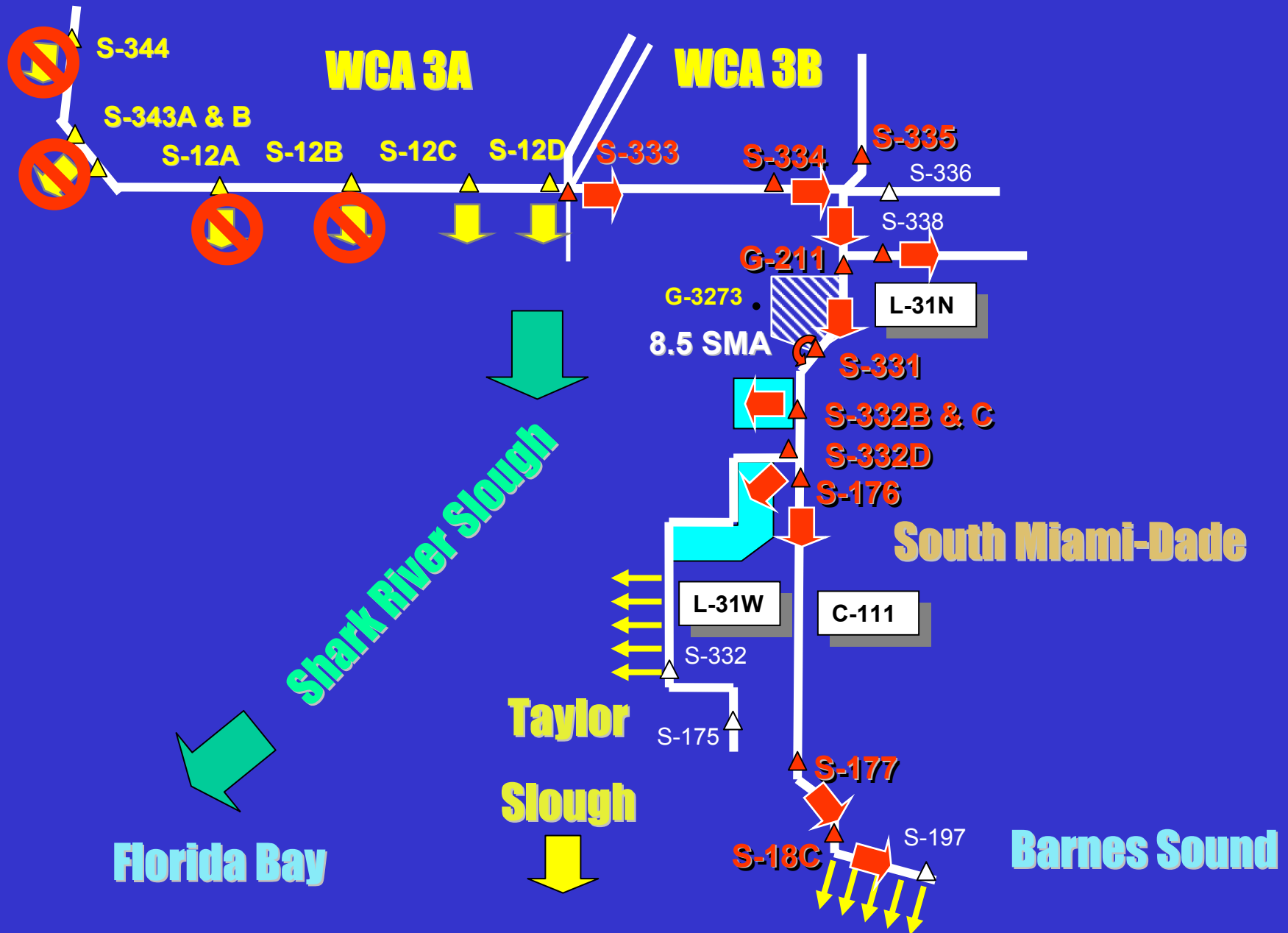
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# Hydrologic Conditions

## SDCS Current Operations

- Current Operations are following Column 2 of the IOP Operating Criteria
  - Focuses on bring excess water from WCA-3A thru the SDCS to Shark River & Taylor Sloughs
  - Slightly lower canal stages allowed than under Column 1 criteria
    - Column 1 criteria is used when regulatory releases from WCA-3A to SDCS are not required

# SDCS - IOP General Operations

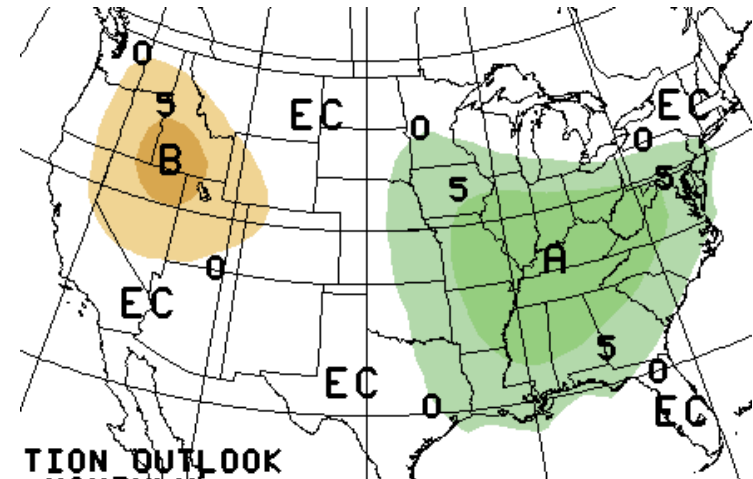


# Climate Outlook

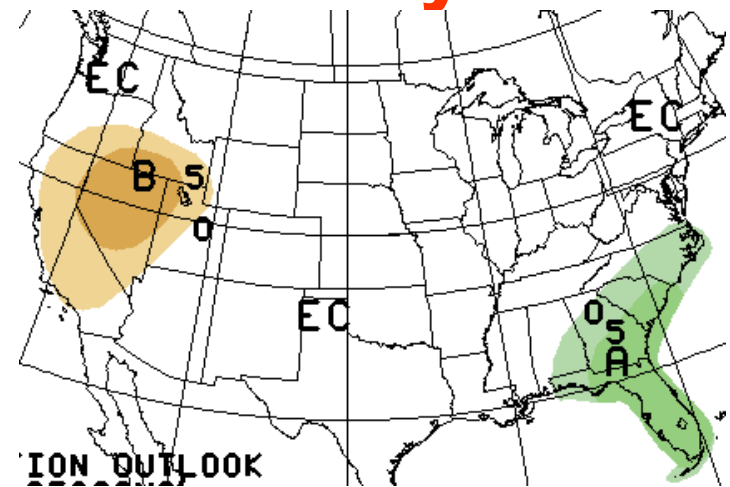
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# Seasonal Climatic Outlook

- CPC reports that July 2003 has an “equal” probability of above average, average, or below average precipitation
- The period of August thru October has a slightly higher probability of above average precipitation



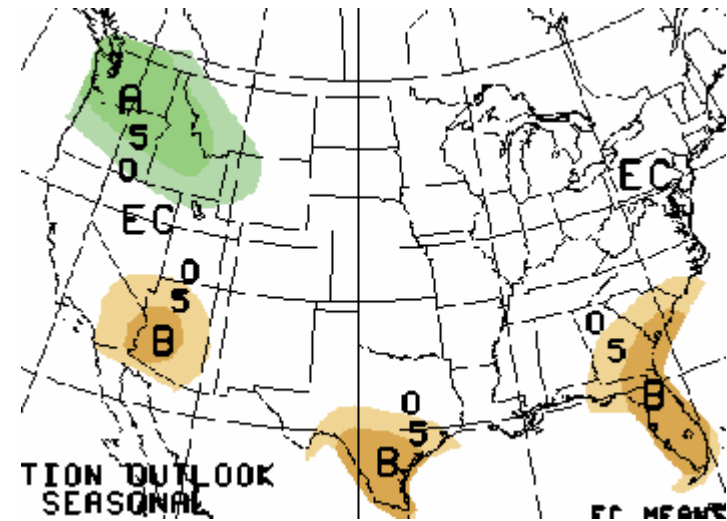
**July**



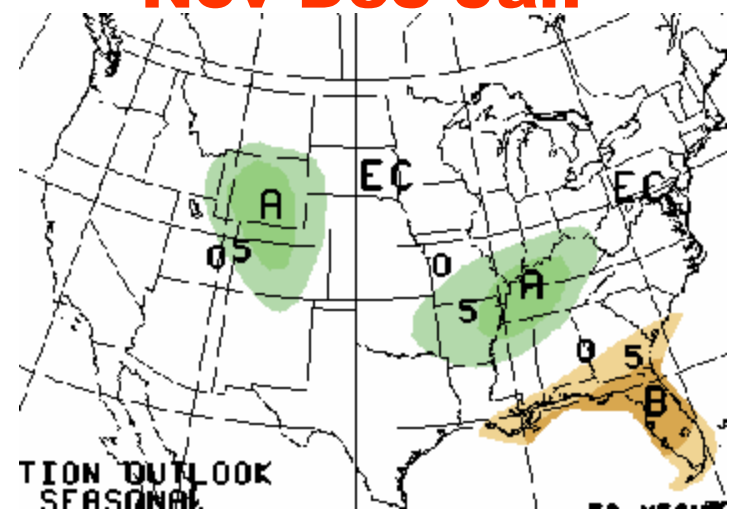
**Aug-Sep-Oct**

# Last Month's Seasonal Climatic Outlook

- Last month, CPC reported that December 2003 through March 2004 had a slightly higher probability of below average precipitation
  - Based on the probability of a La Nina system developing in the Pacific



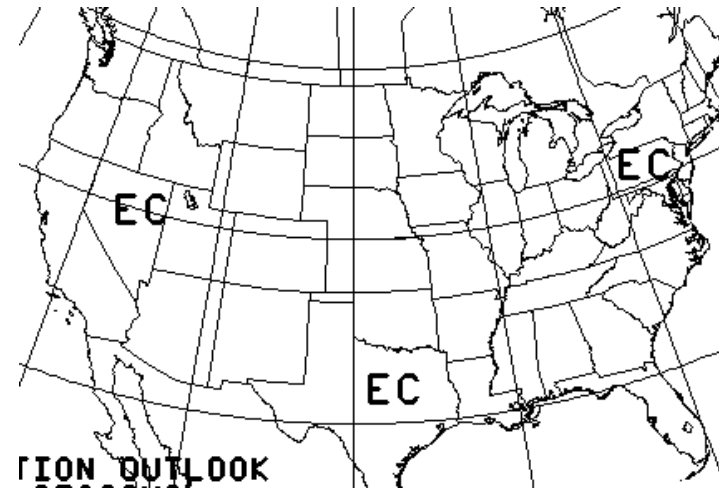
**Nov-Dec-Jan**



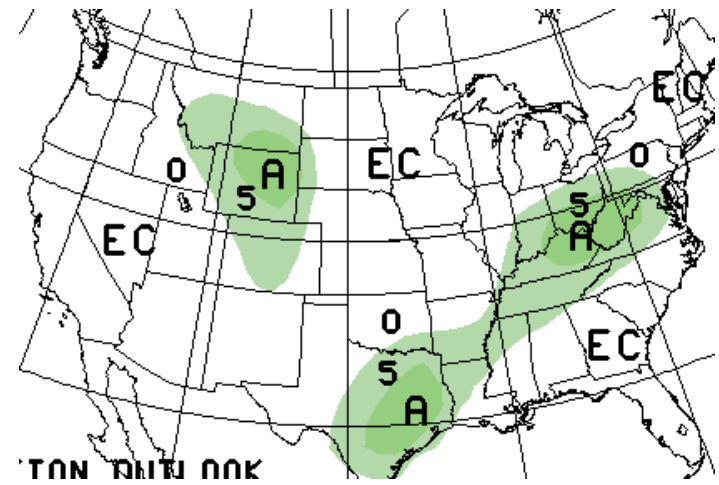
**Jan-Feb-Mar**

# Seasonal Climatic Outlook

- CPC now reports that December 2003 through March 2004 had an equal probability of average, above average or below average precipitation



**Nov-Dec-Jan**



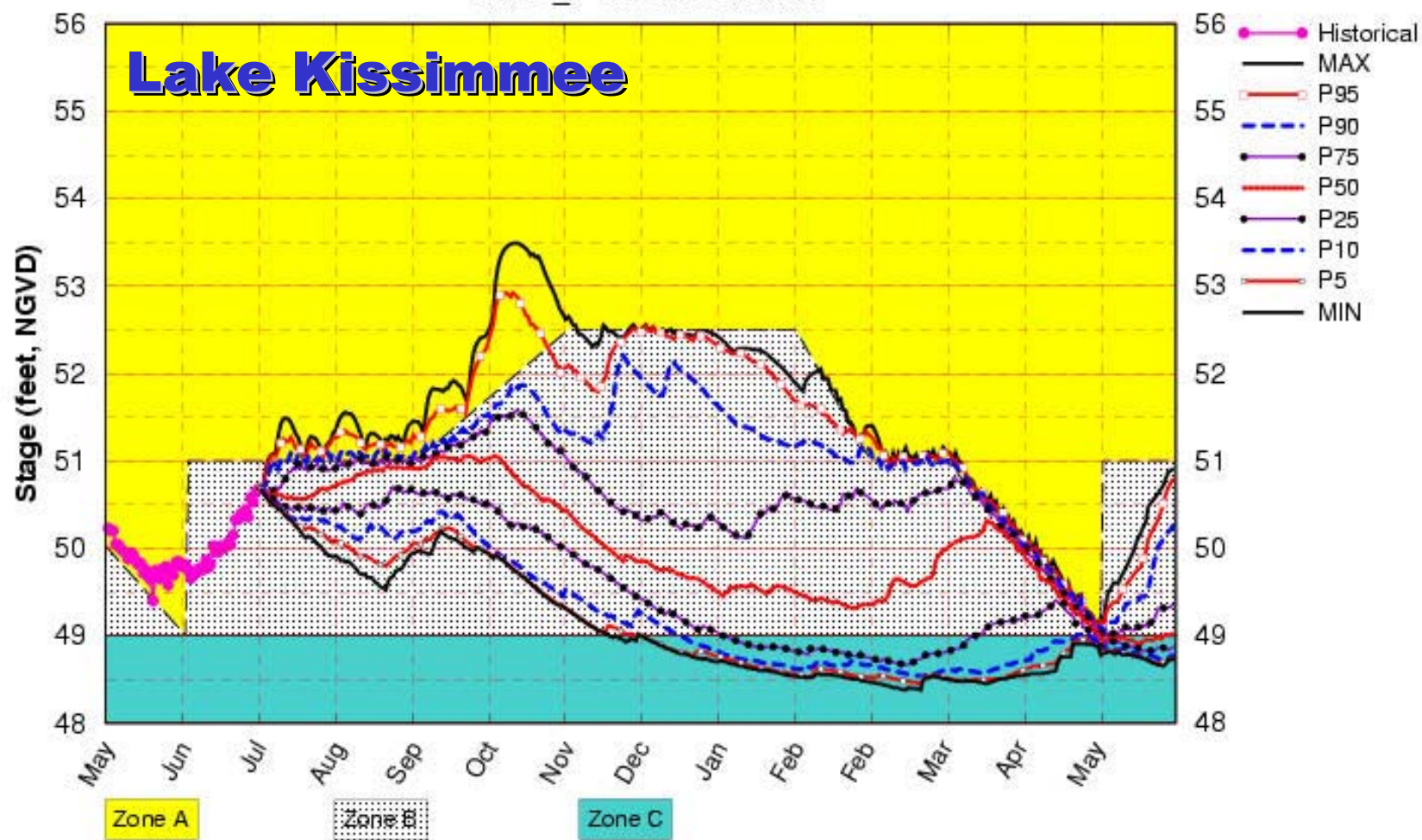
**Jan-Feb-Mar**

# Hydrologic Outlook

Governing Board Presentation - June 9, 2003

# S65 UKISS Jul 2003 Position Analysis

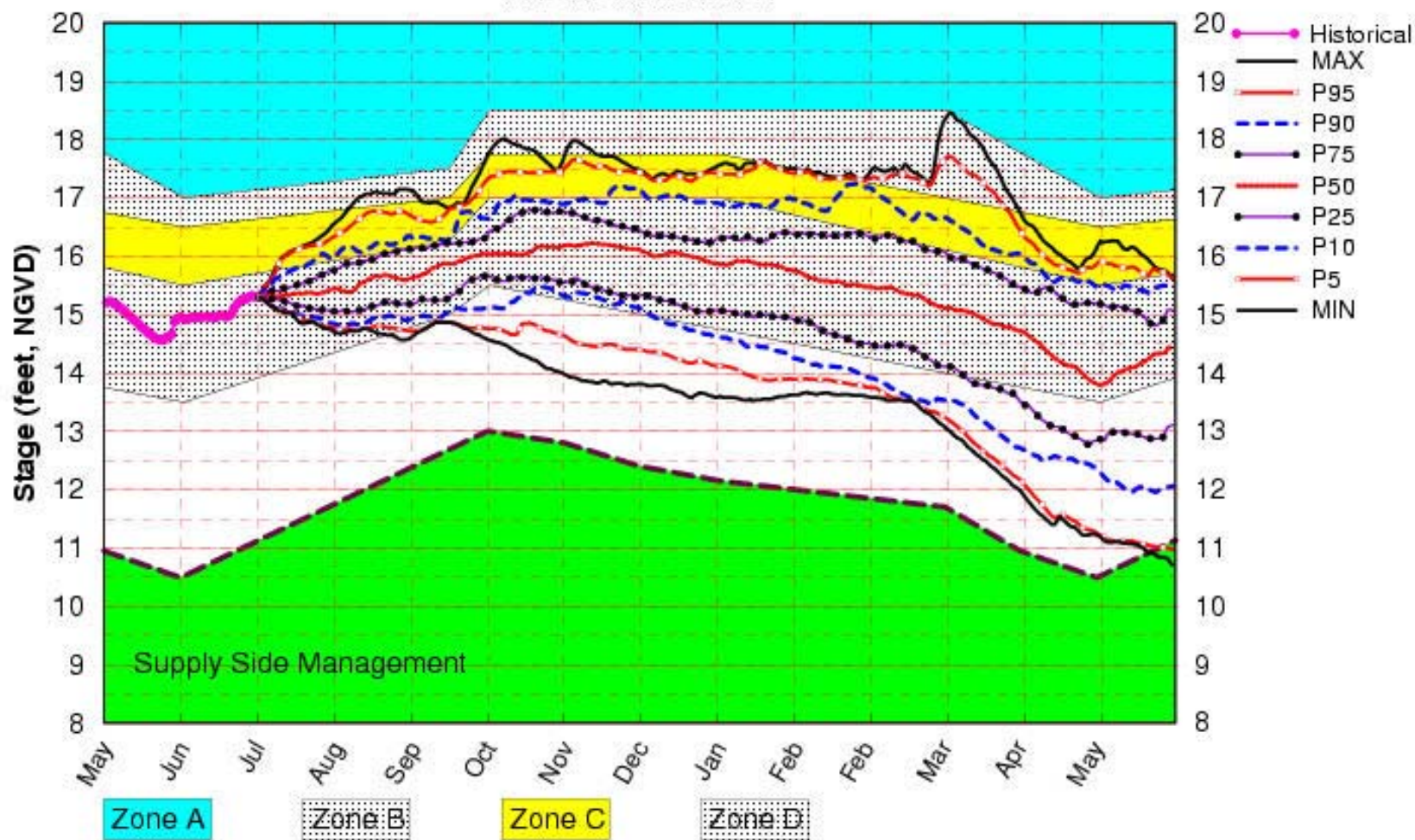
UKISS\_1 Unconditional PA



(See assumptions @ [http://www.sfwmd.gov/org/pld/hsm/sfwmm\\_pa.html](http://www.sfwmd.gov/org/pld/hsm/sfwmm_pa.html))

# Lake Okeechobee SFWMM Jul 2003 Position Analysis

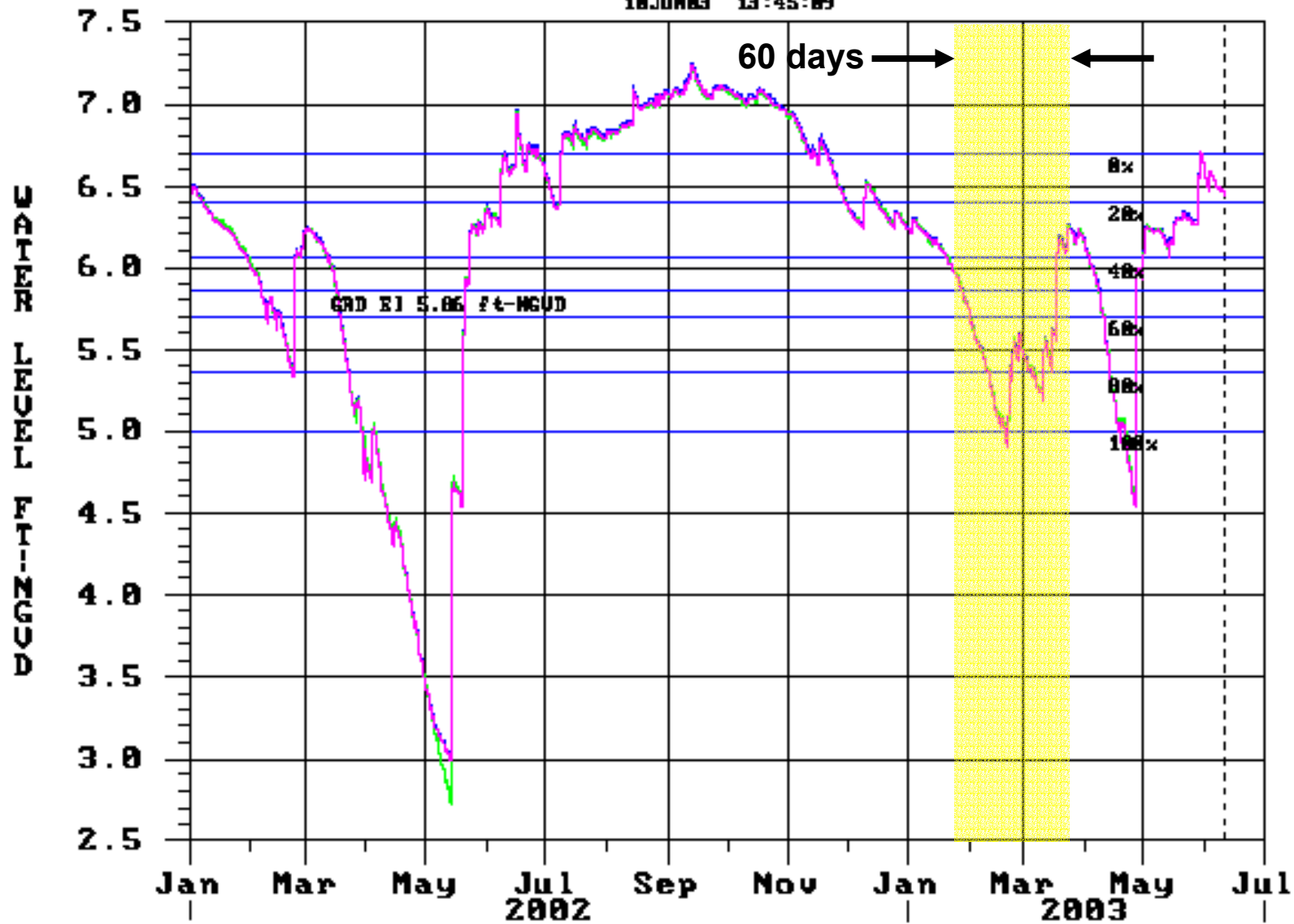
PA Unconditional PA



(See assumptions @ [http://www.sfwmd.gov/org/pld/hsm/sfwmm\\_pa.html](http://www.sfwmd.gov/org/pld/hsm/sfwmm_pa.html))

# Western Marl Prairie Habitat - Subpopulation A

18JUN03 13:45:09



NP-205 Water Levels

NP-205 Water Levels Electric Tape

NP-205 Water Levels GOES